ORDER NO. KM40205877C3

Service Manual

Telephone Equipment

Caller ID Compatible

KX-TSC35JXW

Integrated Telephone System

White Version

(for Asia, Middle Near East and Other areas)

SPECIFICATIONS

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Power Source:	Telephone line voltage
Memory Capacity:	50 Caller ID memory, 50 Directory memory.
Dial Speed:	Tone(DTMF) / Pulse (10 pps)
Redial:	The unit redials the last 20 dialed number
Speaker Unit:	Unit: 5.7cm (2.5") PM magnetic type 32Ω Handset; 3 cm ($1^{13}/_{16}$) PM dynamic type 150Ω
Microphone:	Electret condenser microphone
Input Jack:	Telephone Line, Data port
Dimensions:	$6^{9}/_{16}" \times 8^{13}/_{16}" \times 3^{3}/_{4}"$ (167 × 224 × 95 mm)
Weight:	1.54 lbs. (700g)

Design and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.
When repairing, the following precautions will help prevent recurring malfunctions.
1. Cover plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on worktable.
4. Do not grasp IC or LSI pins with bare fingers.

Panasonic

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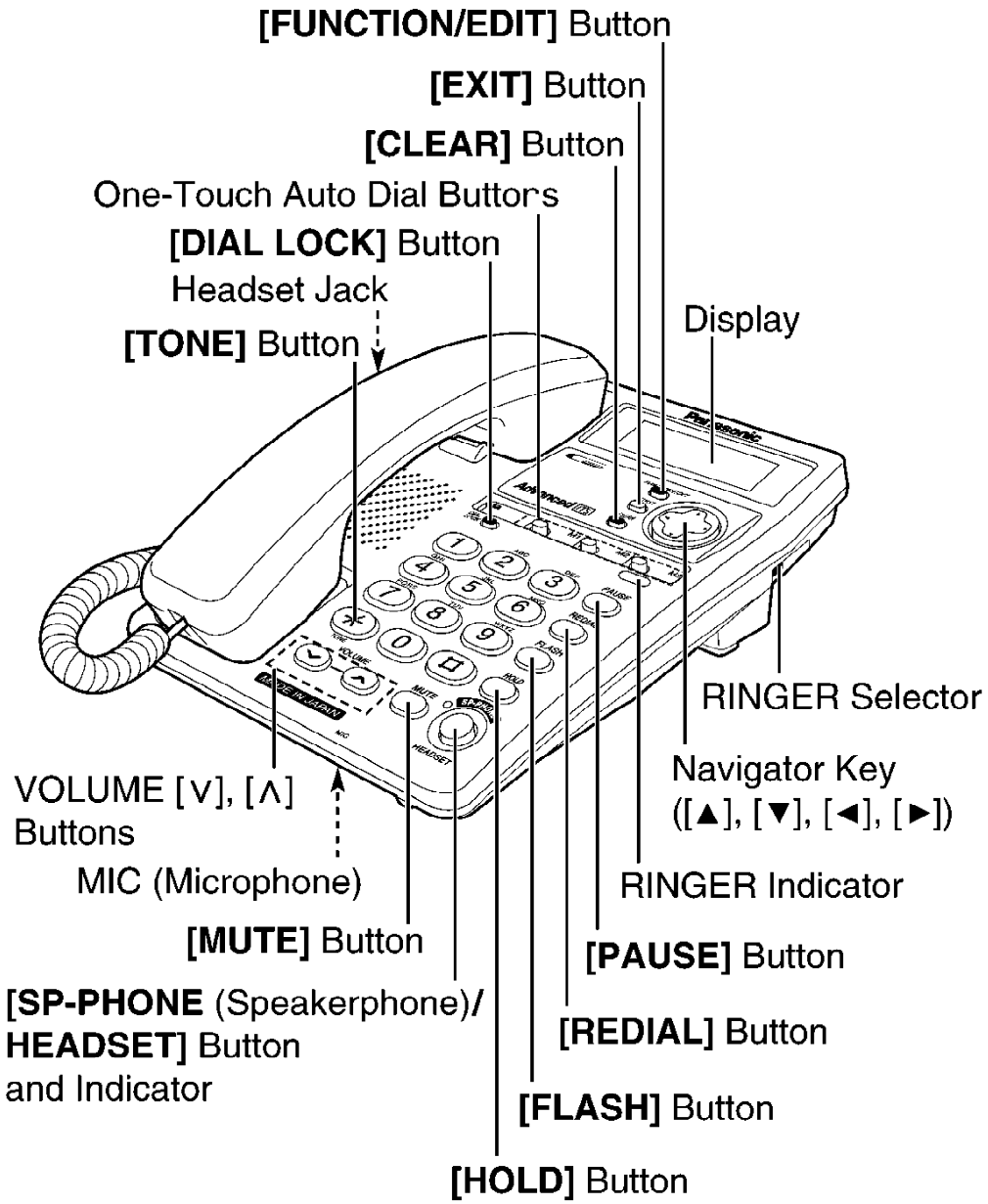
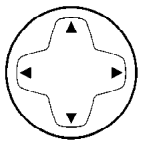
2. LOCATION OF CONTROLS



How to use the Navigator key

This key has four active areas that are indicated by arrows.



- Pressing the up and down arrows allows you to enter the Caller List and scroll through the function menu, the Caller List and the Speed Dial List.
- Pressing the right and left arrows allows you to enter the Speed Dial List and move the cursor when entering items. The right arrow is used to select or confirm your menu choices.

Throughout this Operating Instructions, the navigator key is indicated by the arrows [▲], [▼], [◄] or [►].

3. DISPLAY

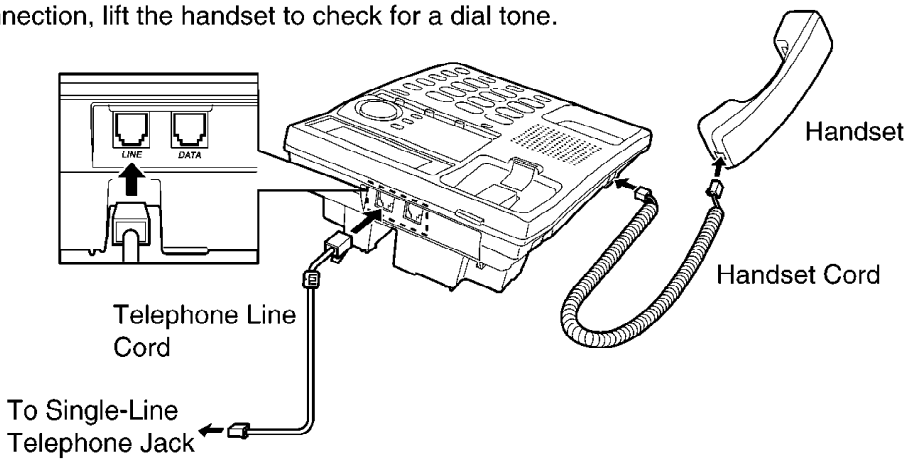
1234567890123456 ABCDEFGHIJKLMNOP abcdefghijklmnop	(This display shows all of the possible configurations.)
12:34PM 21.5 10 new calls	While the unit is not in use, the display shows the current time and date, and the number of new calls.
12:00AM 1.1	If the display continuously shows "12:00AM 1.1" or "0:00 1.1" and "" flashes, the clock needs adjusting.
12:34AM 21.5 01-06-35	During a conversation, the display shows the length of the call (Ex, 1 hour, 6 minutes and 35 seconds).
111444777 11:50AM 24.11 X3	This is a display from the Caller List. The display shows: — the caller's number, — the time and date of the last call (Ex. Nov. 24, 11:50 AM), and the number of times called (Ex. 3 times).

: The dial lock mode is set. To cancel the mode.
: **[MUTE]** was pressed during a conversation.
: The unit plays music during the hold for a caller.
: The unit enters in the Speed Dial List.
: **[REDIAL]** was pressed.
: This display flashes, when the battery power is low. To replace the batteries.
P : **[PAUSE]** was pressed while dialing or storing phone numbers.
F : **[FLASH]** was pressed while storing phone numbers.

4. CONNECTION

4.1. Connecting the Handset/Telephone Line Cord

After connection, lift the handset to check for a dial tone.

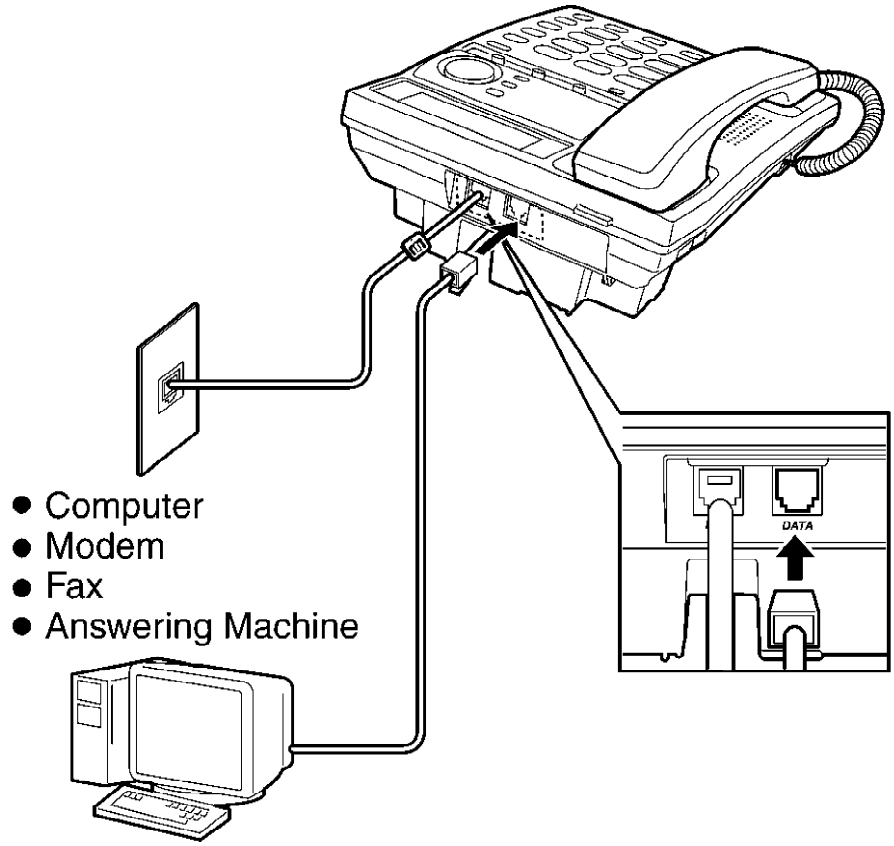


- Use only a Panasonic Handset for the KX-TSC35MXW.
- Use only a telephone line cord included in the unit.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)
- If your unit is connected to a PBX which does not support Caller ID

services, you cannot access those services.

4.2. Connecting a Communication Device

If you connect a communication device (computer, modem, fax, answering machine, etc.) to the telephone line, you can connect it through this unit using the DATA jack.
After connecting the handset, and telephone line cord, connect the communication device telephone line cord to the DATA jack.



- Make sure the communication device is not in use before using this unit (making calls, storing phone numbers in memory etc.) or the communication device may not operate properly.

5. SETTINGS

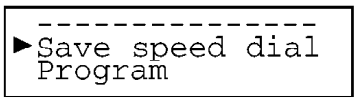
∗ To Set the Each Settings (5.1. ~ 5.13.) Back to the Factory Default < for Service>

You can set the each settings (5.1. ~ 5.13.) back to the factory default by taking off the battery and leave the unit for a while (about 3 minutes).

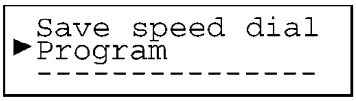
5.1. Dialing Mode

You can select the dialing mode by programming. If you have touch tone service, set to Tone. If rotary or pulse service is used, set to Pulse.
Your phone comes from the factory set to Tone.
Make sure that the handset is on the cradle and the SP-PHONE/HEADSET indicator light is off.

1 Press **FUNCTION/EDIT**.

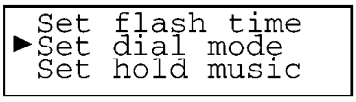


2 Scroll to "program" by pressing ▼ or ▲.

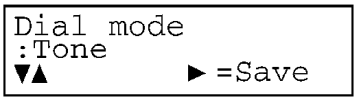


3 Press ►.

4 Scroll to "Set dial mode" by pressing ▼ or ▲.



5 Press ►.



6 Select "pulse" or "Tone" or pressing ▼ or ▲.

7 press ► (Save **key**).

- A long beep sounds.
- The display will return to step 4. To exit the programming mode, press **EXIT** or wait for 60 seconds.

•You can exit the programming mode any time by pressing **EXIT**.

5.2. Time and Date

You can select AM/PM or 24-hour clock by programming.
Make sure that the handset is on the cradle and the SP-PHONE/HEADSET indicator light is off.

1 Press FUNCTION/EDIT.

2 Scroll to "Program" by Pressing ▼ or ▲ and press ►.

3 Scroll to "Set Clock" by pressing ▼ or ▲.

```
 LCD contrast
►Set clock
 Change password
```

4 Press ►.

```
12:00AM  01.01
0000
     ►=Set clock
```

5 Press ► (Set Clock key).

```
Enter year
0000
          ▼=Next
```

6 Enter the current year.
(Ex. To set 2002, enter "2002".)
•You can set the year 2000 to 2099.

```
Enter year
2002
          ▼=Next
```

7 Press ▼ (Next key).

```
Enter time
12:00
          ▼=Next
```

8 Enter the current time (hour and minute) using a 4-digit number.
(Ex. To set 9:30, enter "0930")
•For AM/PM setting: Enter numbers between 0100 and 1259.
•For 24-hour clck: Enter numbers between 0000 and 2359.

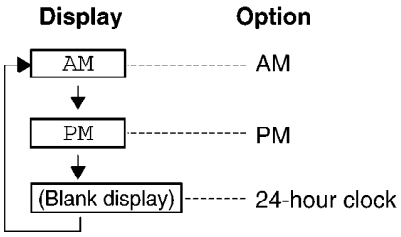
```
Enter time
09:30
          ▼=Next
```

9 Press ▼ (Next key).
•If numbers between 0000 and 0059, or 1300 and 2359 are entered, the time will automatically be set using the 24-hour clock. Skip the steps 10 and 11, and go to the step 12.

```
*=AM/PM
AM
          ▼ =Next
```

10 Press [✱] to select "AM", "PM" or 24-hour clock.
(Ex. You select "PM".)

```
✱=AM/PM
PM
          ▼ =Next
```



- Each time you press [✱], the selection will change on the display.

11 Press [▼] (Next key).

```
Enter day.month
01.01
          ► =Save
```

12 Enter the current day and month using a 4-digit number.
(Ex. To set Dec. 27, enter "2712".)

```
Enter day.month
27.12
          ► =Save
```

13 Press [►] (Save key).

- A long beep sounds.
- The clock starts working.
- The display will return to set 3. To exit the programming mode, press [EXIT] or wait for 60 seconds.

- You can go back to the previous screen by pressing [▲], when setting the time and date (steps 5 through 12).
- If 3 beeps sound when entering the time and date, the time and date entered are not correct. Enter the correct time and date.

If the batteries installed in the unit expired, the time and date will be shown as "12:00AM 1.1" or "0:00 1.1", and "🕘" will flash while talking or after the battery replacement. Readjust the time/date.

For Caller ID service users
If a time display service is available with the Caller ID service:
- The Caller ID information will re-set the clock after the ring if the adjusted time and/or date is incorrect. However, if the time/date has not previously been set, the Caller ID information will not adjust the clock.

5.3. LCD Contrast

You can select the LCD contrast level from 1 to 4 by programming. Your phone comes from the factory set to 3.
Make sure that the handset is on the cradle and the SP-PHONE/HEADSET indicator light is off.

1 Press [FUNCTION/EDIT].

2 Scroll to "Program" by pressing [▼] or [▲] and press [▶].

```
 ---------------
►LCD contrast
 Set clock
```

3 Press [▶] at "LCD contrast".
• The current setting is displayed.

```
 LCD contrast
 Low ■■■     High
▼▲          ► =Save
```

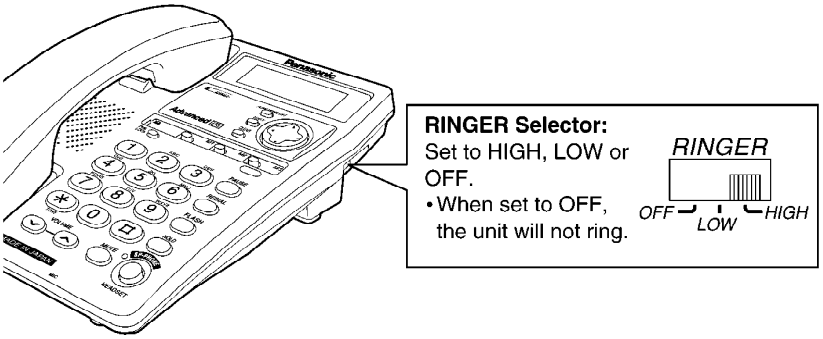
4 Select the desired contrast be pressing [▼] or [▲].
• Each time you press [▼] or [▲], the LCD contrast will change.

5 Press [▶] (Save key).
• A long beep sounds.
• The display will return to step 2. To exit the programming mode, press [EXIT] or wait for 60 seconds.

• You can exit the programming mode any time be pressing [EXIT].

Ringer Volume

You can select the ringer volume to HIGH, LOW or OFF. Your phone comes from the factory set to HIGH.

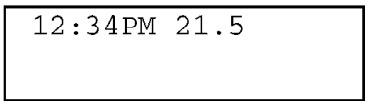


5.4. Making Calls

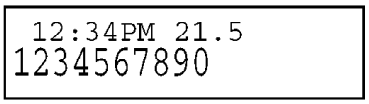
You can make a call by simply lifting the handset. To hang up, place the handset on the cradle.

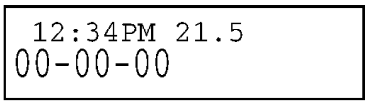
Using the speakerphone

1 Press **SP-PHONE/HEADSET**.
The indicator lights.



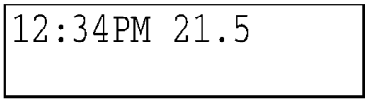
2 Dial a phone number.
- The dialed number is displayed.
- After a few seconds, the display will show the length of the call.
- If you misdial, hang up and start again from step 1.





3 When the other party answers, talk into the **MIC** (microphone).

4 To hang up, press **SP-PHONE/HEADSET**.
- The indicator light goes out.



During speakerphone operation
For best performance, please note the following:
- Talk alternately with the other party in a quiet room.
- If the other party has difficulty hearing you, press **VOLUME** ▽ to decrease the speaker volume.
- You can switch to the handset by lifting it up. To switch back to the speakerphone, press **SP-PHONE/HEADSET**.

To redial the last number dialed

Using the handset: Lift the handset ➡ press **REDIAL**.

Using the speakerphone: Press **SP-PHONE/HEADSET** ➡
Press **REDIAL**.

Automatic Redial:
When using the speakerphone, the unit redials the last dialed number up to 15 times within a 10-minute period if the line is busy. During redial, "Waiting redial" will be displayed and the SP-PHONE/HEADSET indicator light ashes.

To redial using the redial list (Memory Redial)

The last 20 phone numbers dialed are stored in the redial list.

1. Press **REDIAL**.
   - The last number dialed and "●" are displayed.
   - When the number dialed has been stored in the Speed Dialer List, the name is also displayed.

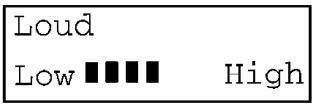
2. Scroll to the desired number by pressing ▼ or ▲.
   - You can also scroll through the list by pressing **REDIAL**.
   - When you scroll to the most recent item, two beeps sound.
   - To exit the list, press **EXIT**.
3. Lift the handset or press **SP-PHONE/HEADSET**.

- To erase an item, repeat steps 1 and 2, and press **CLEAR**.
- If "No items stored" is displayed, the list is empty.

To adjust the handset volume (4 levels) or the speaker volume (8 levels) while talking

To increase, press **VOLUME** ▽.

Ex. Handset volume level: 2



"■■" shows one level.

To decrease, press **VOLUME** △.

Ex. Speaker volume level: 3

"■" shows one level.

- The display shows the volume level for a few seconds.

To put a call on hold

Press **HOLD**.

- The SP-PHONEHEADSET indicator flashes.
- If using the handset, you can place it on the cradle.
- During the hold, the caller will hear music.

To release the hold

If the handset is on the cradle, lift the handset.
If the handset is off the cradle, press **HOLD**.
If using the speakerphone, press **SP-PHONE/HEADSET**.

- If another phone is connected on the same line, you can also release the hold by lifting its handset.

5.5. AnswerinCalls

When a call is received, the unit rings, the RINGER indicator flashes quickly and "Incoming Call" is displayed. You can answer a call by simply lifting the handset.
If you subscribe to a Caller ID service, the calling party's information will be displayed when the unit is ringing.

Using the speakerphone

1 Press **SP-PHONE/HEADSET**.
- The indicator lights.

2 Talk into the **MIC** (microphone).

3 To hang up, press **SP-PHONE/HEADSET**.
- The indicator light goes out.

- When the ringer volume is set to OFF, the unit will not ring.
- The Ringer indicator will flash when
  — a telephone number is dialed in PULSE mode, or
  — someone picks up or hangs up another phone connected to the same phone line.

This is normal.

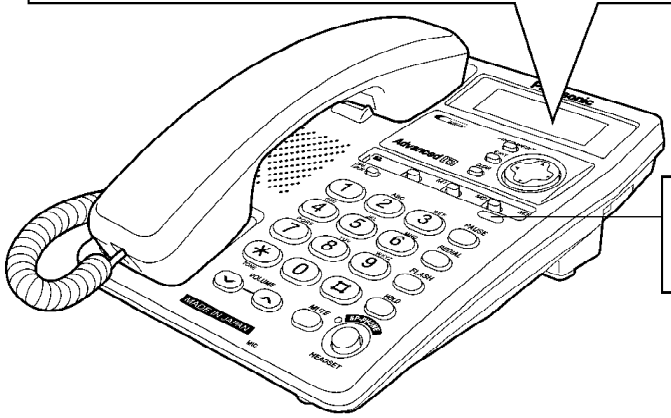
5.6. Caller ID Service

This unit is compatible with a Caller ID service offered by your telephone company. If you subscribe to a Caller ID service, the calling party's information will be displayed when the unit is ringing.
The unit can record information of up to 50 different callers, including the time and date received and the number of times called, in the Caller List. The Caller List information is sorted from the most recent to the oldest call. When the 51st call is received, the oldest call is deleted.
Using the list, you can automatically call back a caller. You can store the callers' numbers from the Caller List in the Speed Dialer memory or the One-Touch Dialer memory.

How caller information is displayed when a call is received

The display shows the callere's phone number when the unit is ringing.*

- After you answer the call, the display will show the length of the call.



***Private name display**

If you receive a call from one of the same phone numbers stored in the Speed Dial List, the caller's name will be displayed.

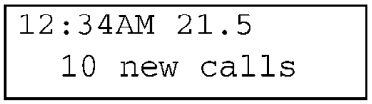
TINA ROBINSON
1114447777

- To use this function, names and phone numbers must be stored in the Speed Dial List.
- Caller information will not be displayed in the following cases:
  - If the caller dialed from an area which does not provide a Caller ID service, the display will show "Out of area".
  - If the caller has requested not to display his/her information, the display will show "Private Caller".
  - If a long distance call cannot be identified, "Long distance" will be displayed.
- If your unit is connected to a PBX which does not support Caller ID services, you cannot access those services.

- If the batteries installed in the unit have expired, Caller ID services will not be available.
- If the name and the time/date display service is available in your area, the display will show caller's names and the time/date the calls were received. For further information, please contact your telephone company.

5.7. Usin the Caller List

If you have received 10 new calls, the number of new calls will be displayed as shown, while the unit is not in use.



5.8. Viewing the Caller List

To check who has called, follow the steps below.

1 Press ▼ or ▲ to enter the Caller List.

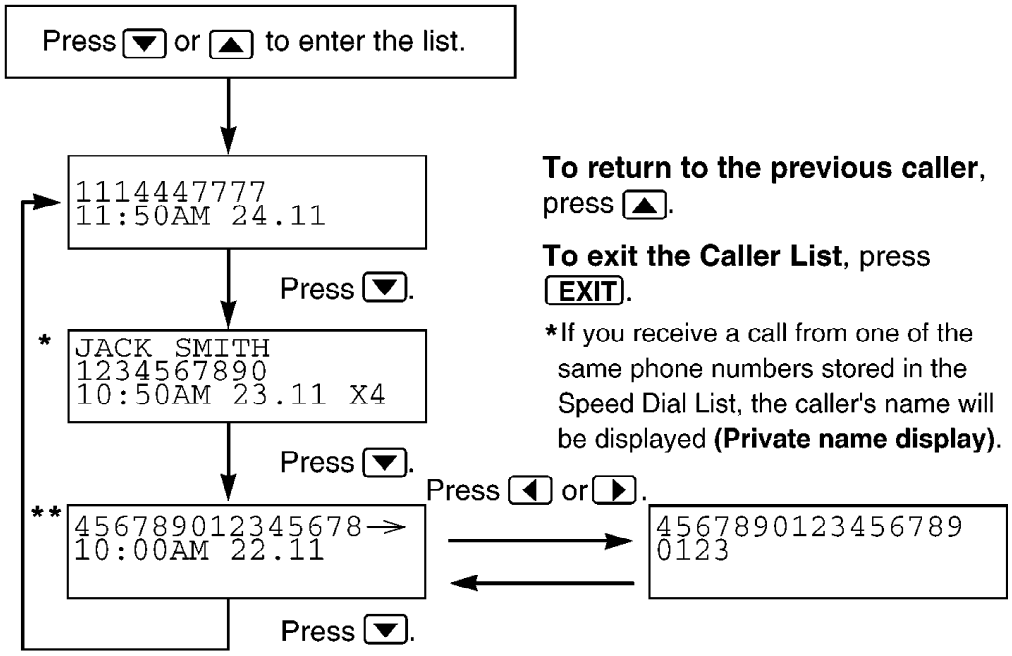
```
Caller's list
  10 new calls
▼▲    ►=Speed dial
```

2 To search from the most recent call, press ▼.
- To search from the oldest call, press ▲.
- To scroll between callers, press ▼ or ▲.

3 To exit the Caller List, press EXIT.

- If "No items stored" is displayed in step 1, the Caller List is empty.
- If more than one call is received from the same caller, the date and time of the most recent call will be recorded.

Ex. When you search from the most recent call:



To return to the previous caller, press ▲.

To exit the Caller List, press EXIT.

*If you receive a call from one of the same phone numbers stored in the Speed Dial List, the caller's name will be displayed **(Private name display)**.

** If an arrow (→) is displayed after the number, the whole phone number has not been shown, Press ◄ or ► to see the remaining numbers or to return to the previous display.
Each time you press ◄ or ►, the display will change alternately.

Display meaning:

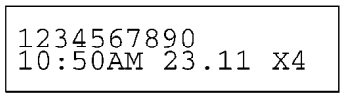
X2–X9:	The number of times the same caller called (up to 9).
√:	You have checked this caller information, answered the call or called back the caller.

5.9. Calling Back from the Caller List

1 Press ▼ or ▲ to enter the Caller List.

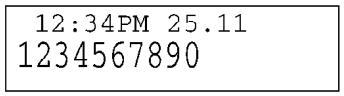
2 Scroll to the desired caller by pressing ▼ or ▲ .

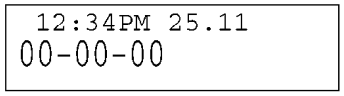
- To exit the Caller List, press **EXIT** or wait for 60 seconds.



3 Lift the handset or press **SP-PHONE/HEADSET**.

- The displayed phone number is dialed automatically.
- After a few seconds, the display will show the length of the call.





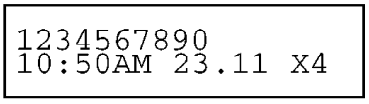
- In some cases, you may have to edit the number before dialing.
- If a phone number is not displayed in the caller information, you cannot call back that caller.

5.10. Editing the Caller's Phone Number

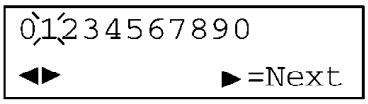
You can edit a phone number recorded in the Caller List.

1 Press ▼ or ▲ to enter the Caller List.

2 Scroll to the desired caller by pressing ▼ or ▲ .



3 **To add a number**
Add a number to the current number.



To erase the number
Press **FUNCTION/EDIT** , then press **CLEAR** to erase the digit.

- You can also add a number if required.

4 After editing, you can continue with calling back or storing procedures.
To call back, lift the handset or press **SP-PHONE/HEADSET** .

- To exit the Caller List during editing, press **EXIT** or wait for 60 seconds.
- The number edited in step 3 will not be maintained in the Caller List.

5.11. Dial Lock

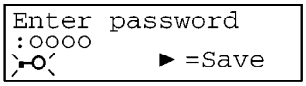
You can prevent others from making a call to any number except the one pre-programmed in the memory of one-touch auto dial buttons. Once you locked the dialing buttons, even emergency numbers cannot be dialed.
Only incoming calls are accepted unit the dial lock is canceled.

> Before using this feature, we recommend storing emergency numners in the memory of one-touch auto dial buttons. Even if the dialing buttons are locked, the numbers stored in these buttons can be dialed.

To set the dial lock

1 Press **DIAL LOCK** .
- "🔑" flashes on the display.

2 Enter the password.



3 Press ► (Save key).
- A long beep sounds, and "🔑" displays.
- If the wrong password is entered, 3 beeps will sound. Enter the correct password.

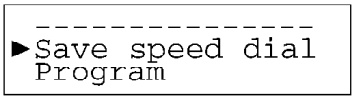
> If the dial buttons are pressed after litting the handset or pressing **SP-PHONE/HEADSET** , "Dial locked" will be displayed.

5.11.1. To cancel the dial lock

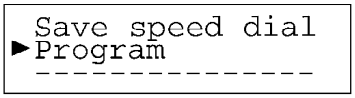
Follow above steps 1 through 3. In step 3, "🔑" will go out.

5.12. How to Release the Establishment of Dial Lock

1 Press [FUNCTION/EDIT].

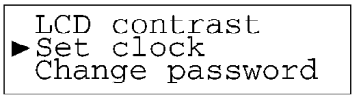


2 Press [▼].

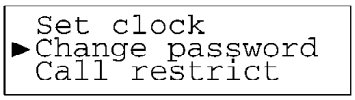


3 Press [▶].

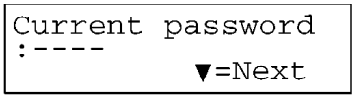
4 Press [▼].



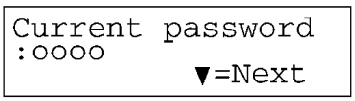
5 Press [▼].



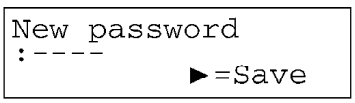
6 Press [▶].



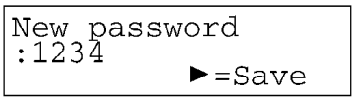
7 Enter "726276642" (Panasonic) for initialzing of password.



8 Press [▼].



9 Enter a new password 4 digits code by dial key pad (Ex."1234"). If you want to set the password for "DIAL LOCK" to "1111" (factory set), you should enter "1111".



10 Press [▶].

After this procedure, the password for "DIAL LOCK" will be returned to "1234".

11 Press [EXIT].

12 To cancel the Dial Lock, follow "5.11.1. To Cancel the Dial Lock".

5.13. FLASH Button

Pressing [FLASH] allows you to use special features of your host PBX such as transferring an extension call or accessing special telephone services (optional) such as call waiting.

Selectin the flash time

The flash time depends on your telephone exchange or host PBX. You can select the following flash times: "90, 100, 110, 250, 300, 400, 600, 700 ms (milliseconds)" . Your phone comes from the factory set to "600 ms".

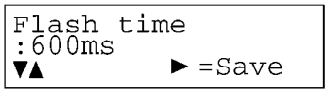
Make sure that the handset is on the cradle and the SP-PHONE/HEADSET indicator light is off.

1 Press [FUNCTION/EDIT].

2 Scroll to "Program" by pressing [▼] or [▲], and press [►].

3 Scroll to "Set flash time" by pressing [▼] or [▲].

4 Press [►].



5 Select the desired time by pressing [▼] or [▲].

6 Press [►] (Save key).
- A long beep sounds.
- The display will return to step 3. To exit the programming mode, press [EXIT] or wait for 60 seconds.

- You can exit the programming mode any time by pressing [EXIT].
- If the unit is connected via a PBX, PBX functions (transferring a call, etc.) might not work correctly. Consult your PBX supplier for the correct setting.

6. DISASSEMBLY INSTRUCTIONS

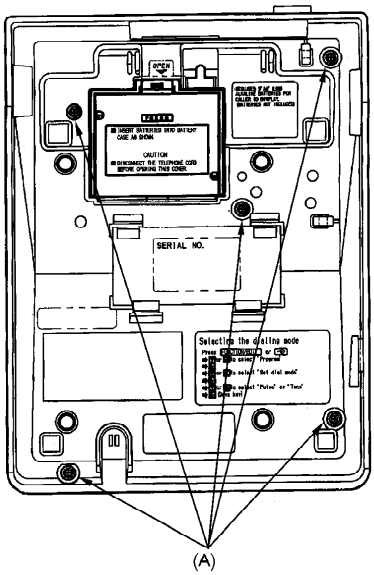


Fig. 1

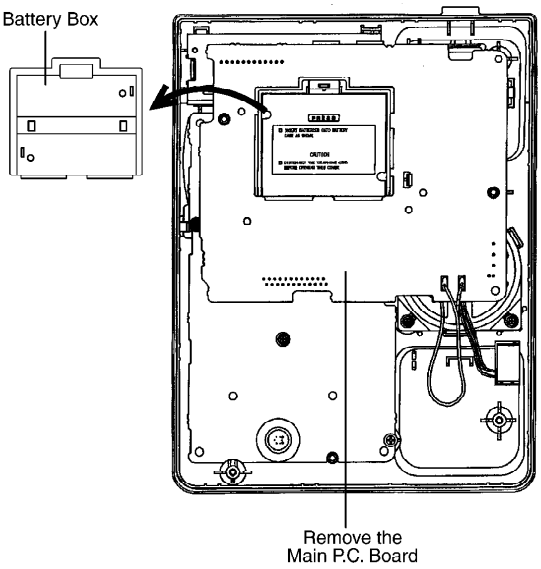


Fig. 2

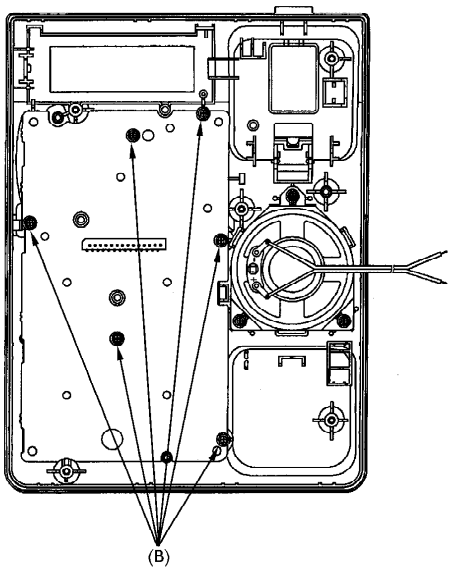


Fig. 3

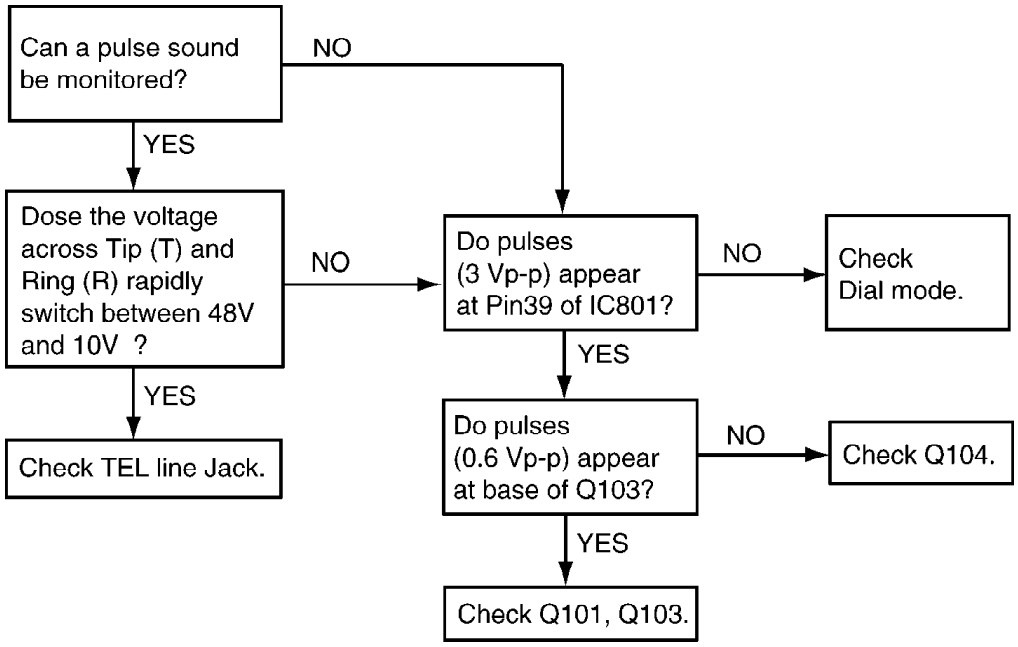
Shown in Fig —.	To remove —.	Remove —.
1	Lower Cabinet	Screws (2.6 × 12).....(A) × 5
2	Main P. C. Board	The Main P.C. Board
	Battery Box	The Battery Box
3	Operational P.C. Board	Screws (2.6 × 8).....(B) × 6

7. TROUBLESHOOTING GUIDE

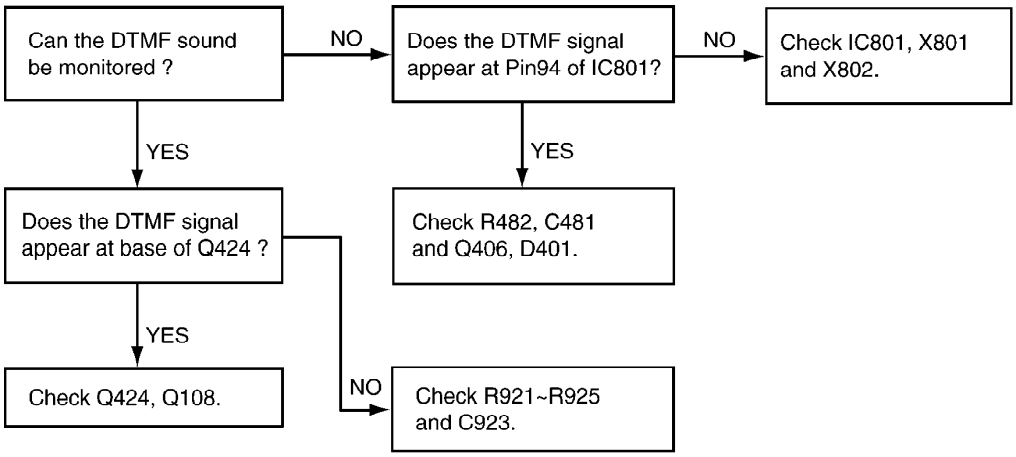
7.1. Service Hints

SYMPTOM	CURE
Dead.	Check IC801, X801, X802.
Can't hear the voice from handset.	Check Q109, Q405, Q406.
No voice transmit.	Check Q421, Q424, Q108.
Can't tone dial.	Check IC801, R921~R925 and C923.
Can't pulse dial.	Check Q101 Q103, Q104.
Can't auto redial.	Check IC201, Q201.
No rings.	Check D1, IC1 and Q1.
Can't speak with the speakerphone.	Check IC601.
Can't hold.	Check Q107.
Can't speak with the handset.	Check Handset jack.
Can't change the volume for speakerphone.	Check IC801, IC601, Q491~Q493, R621~R623.
Can't change the volume for Handset.	Check IC801, Q491~Q493, R402~R404, C404.
No volume handset or speakerphone.	Check IC801, Q108, Q401.
Caller ID Function doesn't work.	Check C551, C552, R551, R552, D551~D554, IC801.
Caller ID Function doesn't work. (DTMF)	Check around IC501, Q501, Q502.

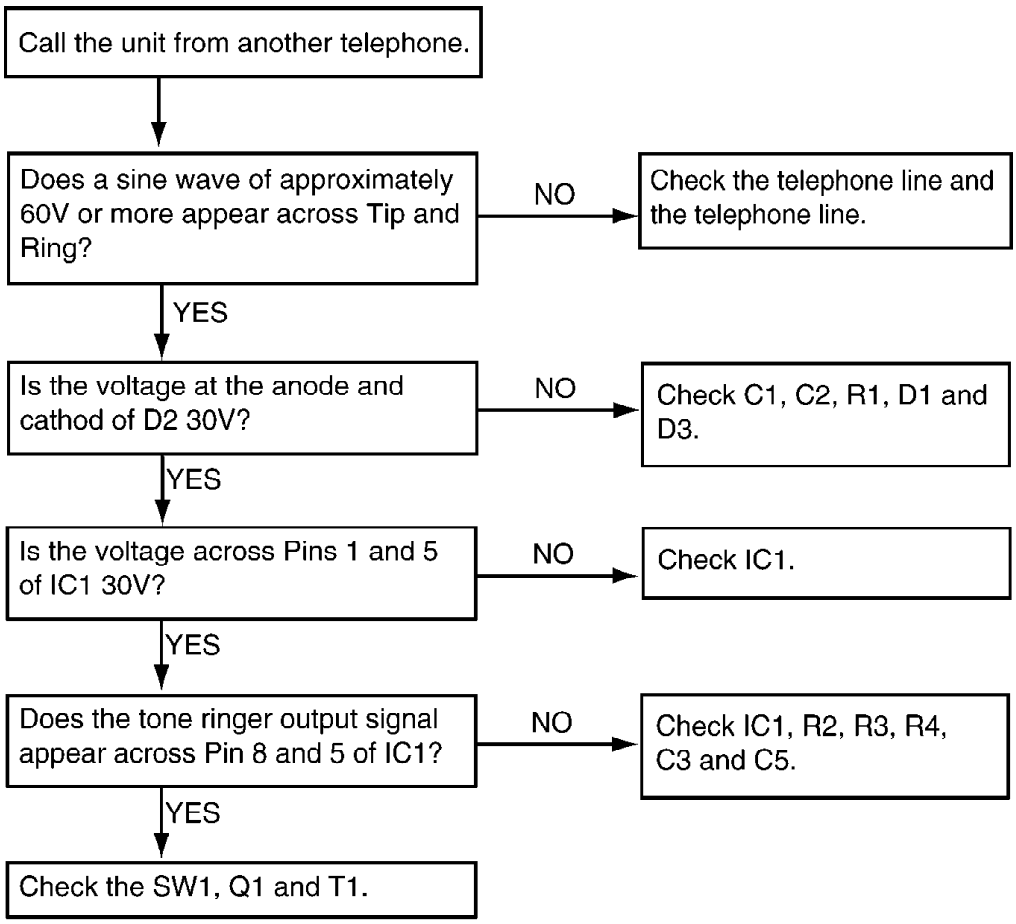
7.2. Pulse Dialing Problems



7.3. Tone Dialing Problems (handset)



7.4. No Ringing Sound When Ring Signal is Input


Call the unit from another telephone.
Does a sine wave of approximately 60V or more appear across Tip and Ring?
NO
Check the telephone line and the telephone line.
YES
Is the voltage at the anode and cathod of D2 30V?
NO
Check C1, C2, R1, D1 and D3.
YES
Is the voltage across Pins 1 and 5 of IC1 30V?
NO
Check IC1.
YES
Does the tone ringer output signal appear across Pin 8 and 5 of IC1?
NO
Check IC1, R2, R3, R4, C3 and C5.
YES
Check the SW1, Q1 and T1.

8. BLOCK DIAGRAM

9. CIRCUIT OPERATION

9.1. Bell Detector Circuit

When the bell signal is input between T/R, the signal are outputted at the speaker via the

following path: Tel line → R1/C1 → D1 → Pin 1 of IC1 → Pin 8 of IC1 → C6 → T1 → C625 → Speaker

9.2. Line Interface

In talk status, SW101 become ON and Q103 base changes to high level, causing Q103, Q101 to turn on and resulting in a line loop.The loop current flows from D101(+) → Q101 → Q108 → R124 → D106 in that order, A pulse signal that repeated switches between high and low logic is output from pin 39 of the CPU.This switches the line loop on and off, generating the dial pulse signal.

9.3. MODULE BLOCK DIAGRAM

9.3.1. Speakerphone Circuit

9.3.1.1. Function

The circuit controls the automatic switching of the transmitted and received signals, to and from the telephone line, when the unit is used in the hands -free mode.

9.3.1.2. Circuit Operation

The speakerphone can only provide a one-way communication path.
In other words, it can either transmit an outgoing signal or receive an incoming signal at a given time, but cannot do both simultaneously. Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.
This switching circuit is contained in IC601 and consists of a Voice Detector, TX Attenuator, RX Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the TX(transmit) or the RX(receive) signal is louder, and then it processed the signals such that the louder signal is given precedence.
The Voice Detector provides a DC input to the Attenuator Control corresponding to the TX signal.
The Comparator receives a TX and a RX signal, and supplies a DC input to the Attenuator Control corresponding to the RX signal.
The Attenuator Control provides a control signal to the TX and the RX attenuator to switch the appropriate signals on and off. The Attenuator Control also detects the level of the volume control to automatically adjust for changing ambient conditions.

1. **Transmission signal path:**
   The input signal from the microphone is sent through the circuit via the following path:MIC → Pin 9 of IC601 → Pin 10 of IC601 → Pin 3 of IC601 → Pin 4 of IC601 → R601 → C602 → Q108 → Tel line.
2. **Reception signal path:**
   Signals receive from the telephone line are outputted at the speaker via the following path:Tel line → Q108 → Q109 → C112 → R600 → C603 → Pin 27 of IC601 → Pin 26 of IC601 → Pin 19 of

IC601 → Pin 15 of IC601 → Speaker.

3. **Transmission/Reception switching**
   The comparison result between TX and RX outputs as a DC level of Pin 25 of IC601.TX level is high ..... Pin 25 = Pin 21 - 6mV RX level is high ..... Pin 25 = Pin 21 - 150mVComparator output is connected to the attenuator control inside of IC601.
4. **Voice detector**
   The output of the mic amp (Pin 10 of IC601) is supplied to Pin 13 of IC601 as a control signal for the voice detector.
5. **Attenuator control**
   The attenuator control detects the setting of the volume control through Pin 24 of IC601 to automatically adjust for changing ambient conditions.

9.3.2. Telephone Line Interface

9.3.2.1. Circuit operation

- On hook

Q101 is open, Q101 is connected as to cut DC loop current and cut the voice signal.

- Off hook

Q101 turns on thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow id for the DC loop current. T → D101 → Q101 → Q108 → R124 → D106 → D101 → R

- The receiving signal flows:

TEL line → Q101 → C113 → R125 → C108 → Q109 → Q405 → Q406 → Headset Jack → H/S SP

- The transmission signal flows

Mic → Q421 → Q424 → C435 → R437 → Q108 → Tel Line

9.3.3. Tone Detect

This circuit is used to sense the status of the line (busy tone or dial tone) during Auto Redial.

9.3.3.1. Circuit operation

D101 → Q101 → C201 → R201 → R205 → Pin 5 of IC201 → Pin 1 of IC201 → D202 → R208 → Q201 → Pin 43 of IC801

When the subscriber hangs-up, check the intermittent tone. If cycle tone is detected, the collector of Q201 goes to a low logic.

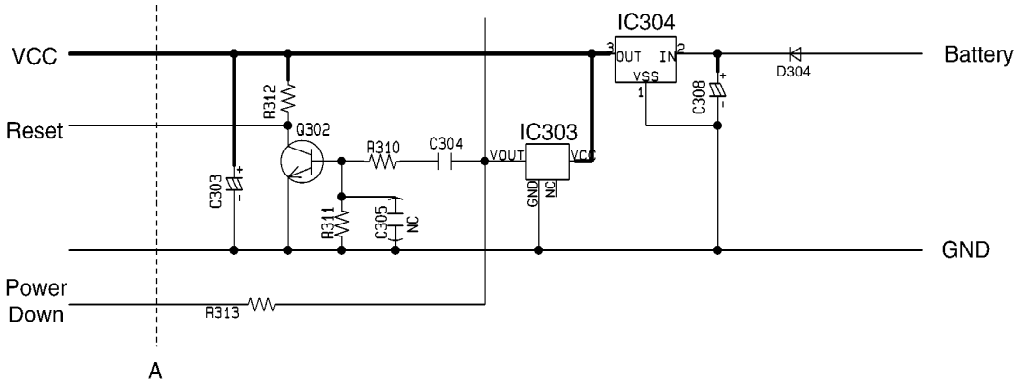
9.3.4. Inializing Circuit

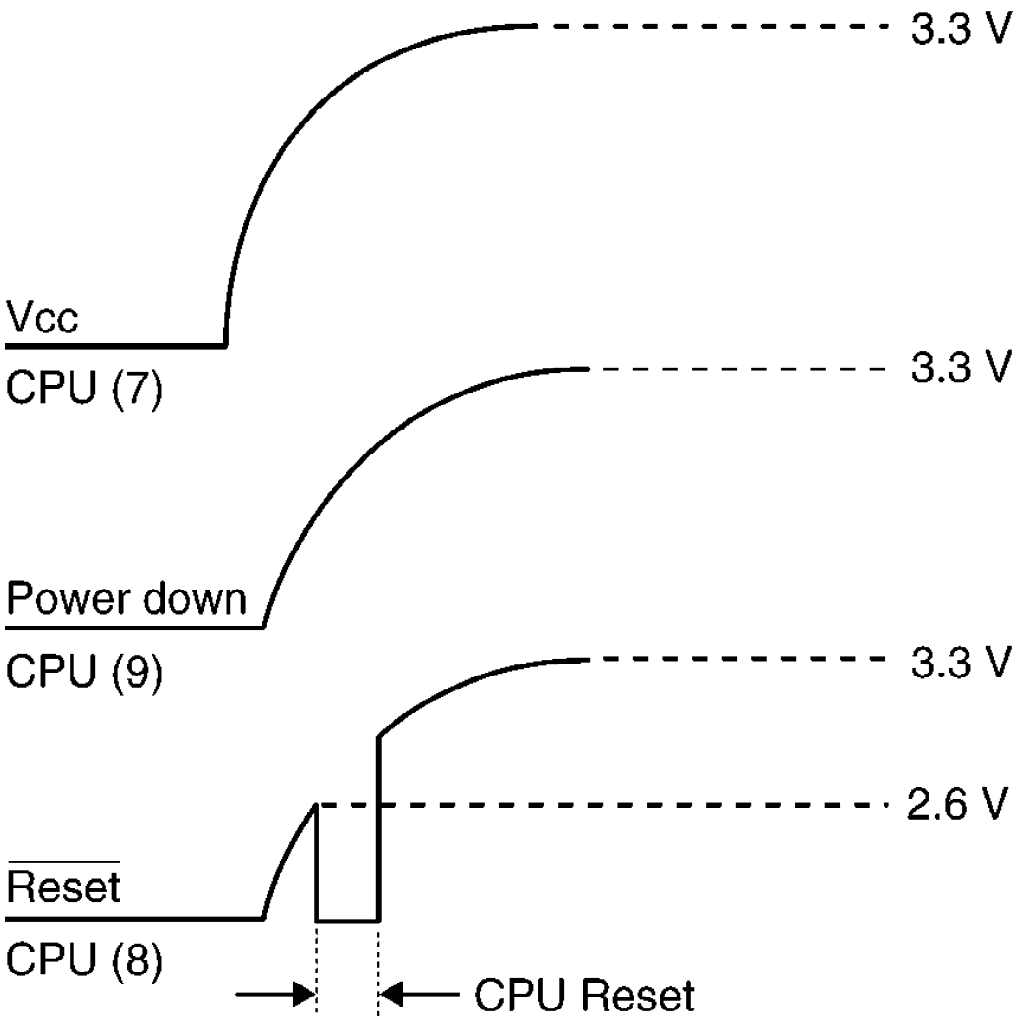
9.3.4.1. Function

This circuit is used for to initialize the microcomputer when it incorporates batteries.

9.3.4.2. Circuit operation

When the batteries is inserted into the unit, then the voltage is regulated by IC304 and power is supplied to the CPU. The set can operate beyond point A in the circuit voltage diagram.





9.4. Caller ID Detect Circuit

9.4.1. Function (FSK signal)

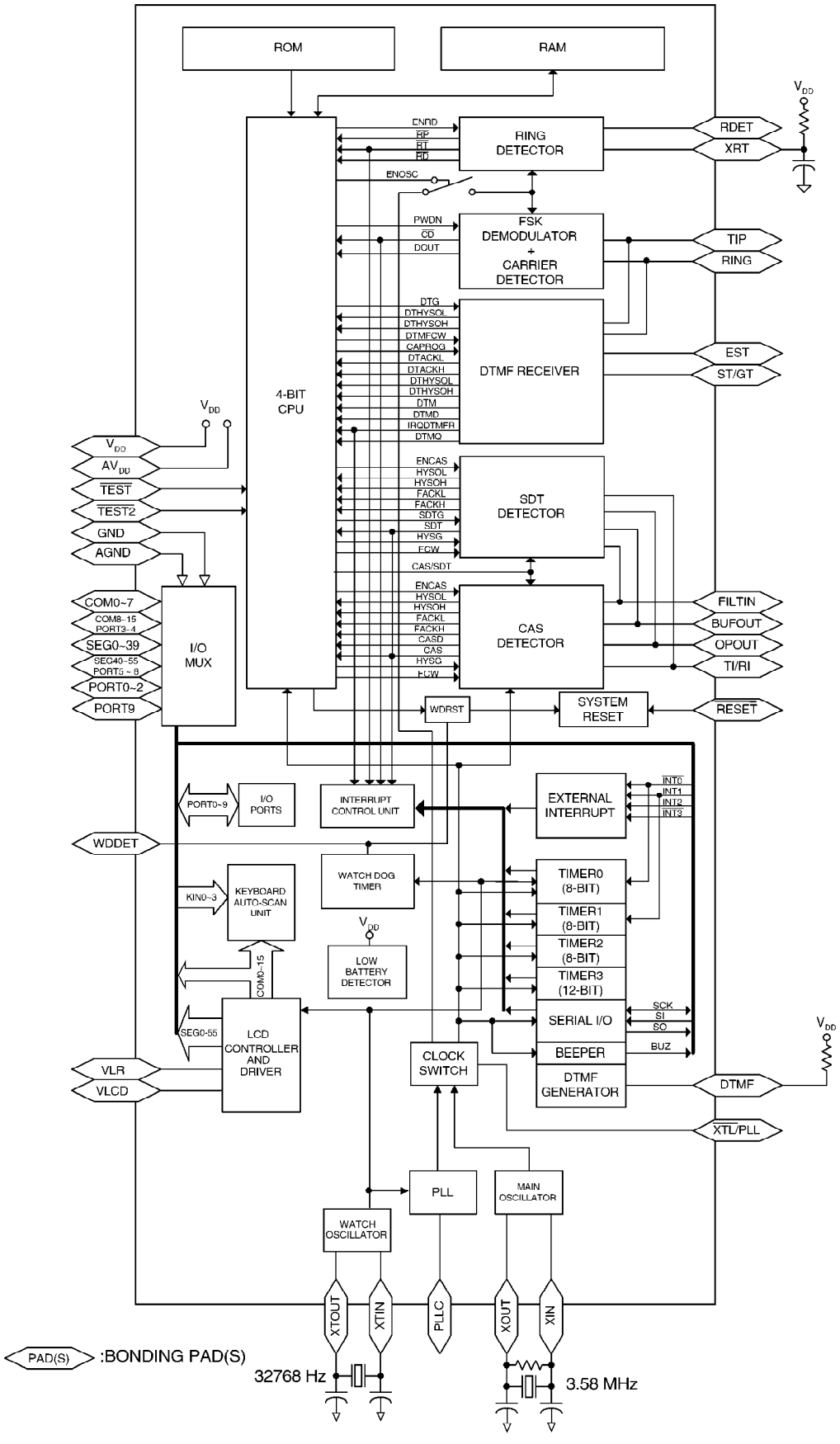
The caller ID is a changeable ID which the user of a telephone circuit obtains by entering a contract with the telephone company to utilize a caller ID service. For this reason, the operation of this circuit assumes that a caller ID service contract has been entered for the circuit being used. The data for the caller ID from the telephone exchange is sent during the interval between the first and second rings of the bell signal. The data from the telephone exchange is a modem signal which is modulated in an FSK (Frequency Shift Keying) format. Data "0" is a 1200 Hz sine wave, and data 1 a 2200 Hz sine wave.There are two types of the message format which can be received: i.e. the single message format and plural message format. The plural message format allows to transmit the name and data code information in addition to the time and telephone number data.

9.4.2. Circuit operation

Caller ID / Caller ID signal is sent through the circuit via the following path: / TEL Line → C551, C552 → R551, R552 → Pin87,88 of IC801

10. BLOCK DIAGRAM

10.1. IC801


ROM
RAM
4-BIT CPU
RING DETECTOR
ENOSC
FSK DEMODULATOR + CARRIER DETECTOR
DTMF RECEIVER
SDT DETECTOR
CAS DETECTOR
I/O MUX
WDRST
SYSTEM RESET
I/O PORTS
INTERRUPT CONTROL UNIT
EXTERNAL INTERRUPT
WATCH DOG TIMER
KEYBOARD AUTO-SCAN UNIT
LOW BATTERY DETECTOR
TIMER0 (8-BIT)
TIMER1 (8-BIT)
TIMER2 (8-BIT)
TIMER3 (12-BIT)
SERIAL I/O
BEEPER
DTMF GENERATOR
LCD CONTROLLER AND DRIVER
CLOCK SWITCH
PLL
MAIN OSCILLATOR
WATCH OSCILLATOR
RDET
XRT
TIP
RING
EST
ST/GT
FILTIN
BUFOUT
OPOUT
TI/RI
RESET
DTMF
XTL/PLL
VDD
AVDD
TEST
TEST2
GND
AGND
COM0~7
COM8~15 PORT3~4
SEG0~39
SEG40~55 PORT5 ~ 8
PORT0~2
PORT9
PORT0~9
WDDET
KIN0~3
COM0~15
SEG0~55
VLR
VLCD
INT0
INT1
INT2
INT3
SCK
SI
SO
BUZ
XTOUT
XTIN
PLLC
XOUT
XIN
32768 Hz
3.58 MHz
PAD(S) :BONDING PAD(S)

10.2. CPU DATA (IC801)

Pin descriptions

Pin No.	Designation	I/O	Description
1 ~ 7	SEG15~21	O	LCD segment signal outputs
8	NC		No connection
9 ~ 15	SEG22~28	O	LCD segment signal outputs
16	NC		No connection
17 ~ 23	SEG29~35	O	LCD segment signal outputs
24	NC		No connection
25 ~ 31	SEG36~39, 56~58	O	LCD segment signal outputs
32	NC		No connection
33	SEG59	O	LCD segment signal output
34 ~ 37	SEG40~43 / P8.3~0	O I/O	LCD segment signal outputs / Port8
38 ~ 41	SEG44~47 / P7.3~0	O I/O	LCD segment signal outputs / Port7
42 ~ 45	SEG48~51 / P6.3~0	O I/O	LCD segment signal outputs / Port6
46 ~ 49	SEG52~55 P5.3~0	O I/O	LCD segment signal outputs / Port5
50 ~ 51	LED1, LED0 / P9.1, P9.0	O	LED driving pins / Port9, these pins are N-channel open drain output
52 ~ 55	KIN3~0 ($\overline{INT2}$)/ P2.3~0	I I/O	Keyboard interrupt inputs ($\overline{INT2}$) / Port2
56	EST	O	Early steering output
57	ST/GT	I/O	Steering Input/Guard time output
58	PLLC	I	Phase Lock Loop Capacitor connected to AVDD

Pin descriptions

Pin No.	Designation	I/O	Description
59	$\overline{\text{XTL}}$/PLL	I	Optional Input for 3.58 MHz oscillator or generated from PLL L : 3.58 MHz oscillator H : PLL
60	VLR	O	Output pin for LCD reference voltage
61	VLCD	I	Input pin for LCD reference voltage
62	VDD	P	Power supply input. Should be decoupled to GND by a capacitor mounted close to the device pin
63	VDD	P	Power
64	$\overline{\text{TEST2}}$	I	Enable TEST MODE 2 when low (For factory used only)
65	NC		No connection
66	XOUT	O	Main oscillator output
67	XIN	I	Main oscillator input
68	$\overline{\text{TEST}}$	I	Enable TEST MODE 1 when low (For factory used only)
69	XTOUT	O	Watch crystal oscillator output
70	XTIN	I	Watch crystal oscillator input
71	$\overline{\text{RESET}}$	I	System reset input (Low active)
72	SCK / P0.0	I/O I/O	Serial clock I/O / Port0.0
73	NC		No connection
74	SI / P0.1	I I/O	Serial data input / Port0.1
75	SO / 0.2	O I/O	Serial data output / Port0.2
76	BUZ / P0.3	O I/O	Buzzer output (Normal low) / Port0.3
77	$\overline{\text{INT0}}$ / P1.0	I I/O	External interrupt input ($\overline{\text{INT0}}$) / Port1.0
78	$\overline{\text{INT1}}$ / P1.1	I I/O	External interrupt input ($\overline{\text{INT1}}$) / Port1.1
79	P1.2	I/O	Port1.2
80	$\overline{\text{INT3}}$ / P1.3	I I/O	External interrupt input ($\overline{\text{INT3}}$) / Port1.3
81	NC		No connection
82	OPOUT	O	Output of TI/RI input OP Amp
83	TI/RI	I	Tip in or Ring in should be connected with twisted pair
84	BUFOUT	O	Internal buffer output
85	FILTIN	I	Band pass filter input
86	AVDD	P	Analog power supply input. This should be decoupled to AGND by a capacitor mounted close to the device pin

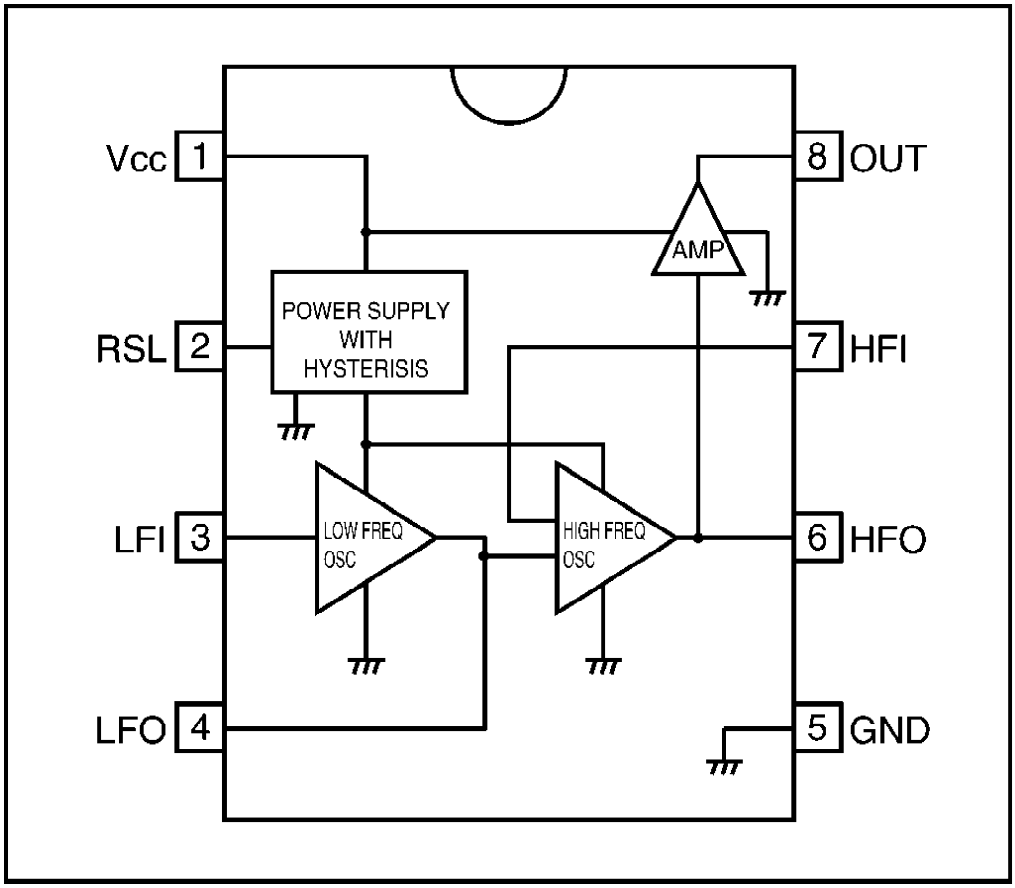
Pin descriptions

Pin No.	Designation	I/O	Description
87	TIP	I	TIP line input pin
88	RING	I	RING line input pin
89	AGND	P	Analog ground
90	NC		No connection
91	NC		No connection
92	RDET	I	RING detected input pin
93	XRT	O	Ring detected output pin (open drain, low active)
94	DTMF	O	DTMF signal output pin
95	WDDET	I/O	Output: watch dog status detecting pin Input: disable watch dog timer while low
96	GND	P	Ground
97	GND	P	Ground
98 ~ 101	COM15~12 / P4.3~0	O I/O	LCD common signal outputs / Port4
102 ~ 105	COM11~COM8/ P3.3~0 / INT2	O II/O I	LCD common signal outputs / Port3 / Keyboard interrupt inputs (INT2)
106 ~ 113	COM7~0 / ROW7~0	O	LCD common signal outputs (Keyboard scanning outputs)
114 ~ 128	SEG0~14	O	LCD segment signal outputs

Note:

- All external interrupt inputs would be triggered by any negative-edge signal

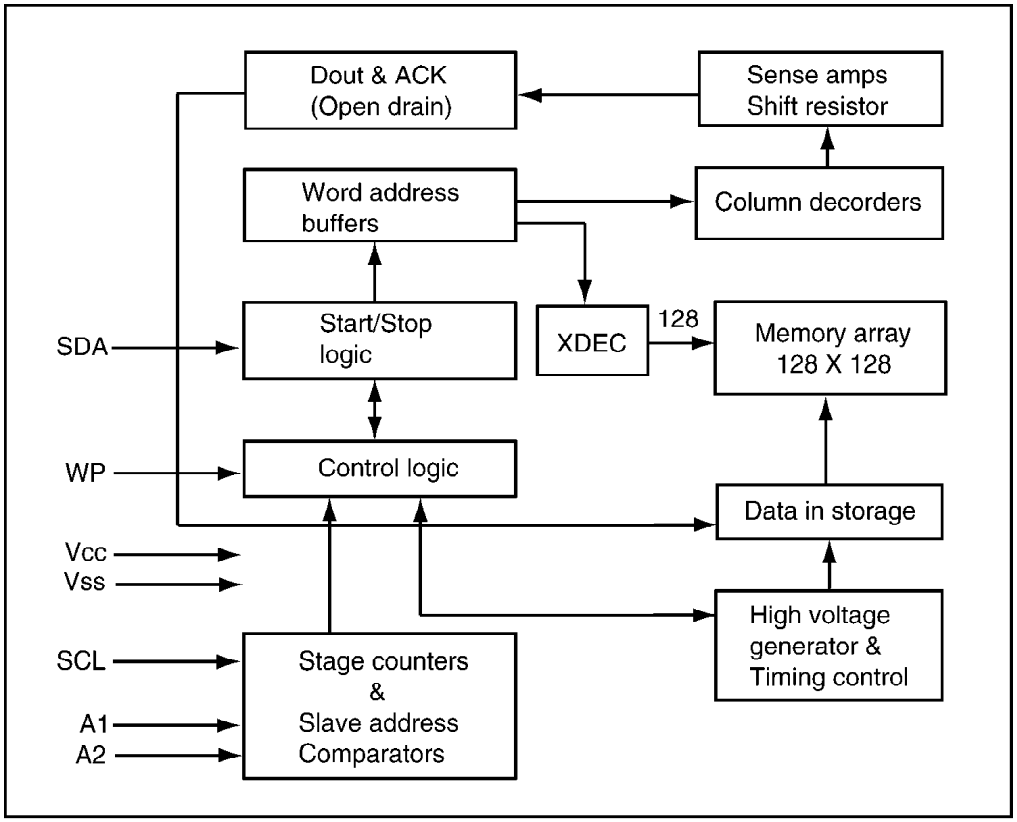
10.3. RINGER IC (IC1)



Pin descriptions

Pin No.	Pin name	Name	Function
1	Vcc	Power supply pin	This is the power supply pin for the IC. It is connected to the (⊕) pin of the diode bridge.
2	RSL	RSL pin	This is used to change the operation initiation current when connected to the GND pin.
3	LFI	Low-frequency time constant connector pin	This is connected to the time constant that determines the oscillation frequency on the warble.
4	LFO		
5	GND	GND pin	This pin has the lowest potential on the IC. It is connected to the (⊖) pin of the diode bridge
6	HFO	High-frequency time constant connector pin	This is connected to the time constant that determines the oscillation frequency on the tone side (the audible frequency side).
7	HFI		
8	OUT	Output pin	This is used to connect a piezoelectric buzzer, or to connect a dynamic speaker through a transformer.

10.4. EEP ROM (IC802)



1. SCL

SCL terminal is input terminal of Serial Clock to control transmit and receipt between Master and Slave.

2. SDA

SDA terminal is input terminal, to forward the address and the mutual data between Master Device and Slave Device the mutual. This terminal needs the pull-up resistance external because output circuit of SDA uses Open Drain.

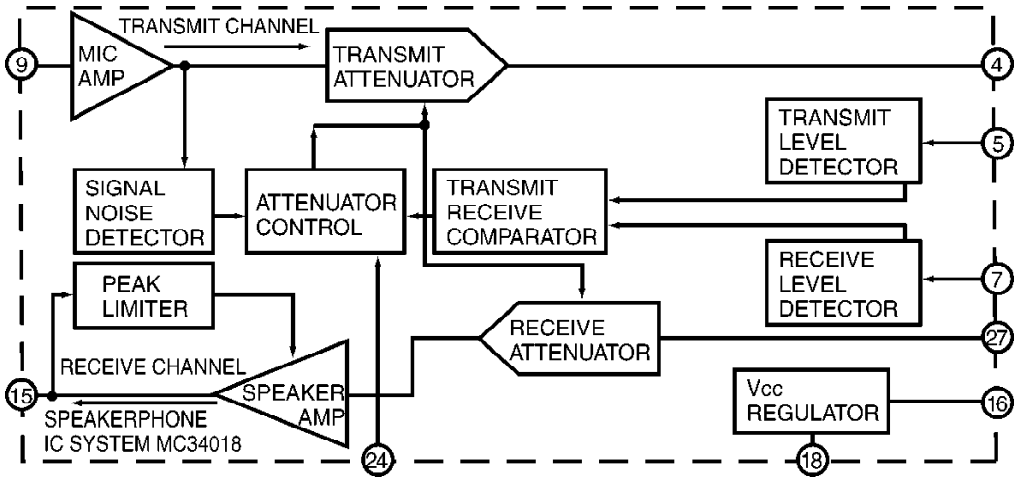
3. A0, A1, A2

A0, A1, and A2 terminal is not used.

4. WP

WP terminal controls writing action. It is possible to do only reading action when high level input and it is possible to do reading and writing action when low level input.

10.5. Speakerphone IC Data (IC601)

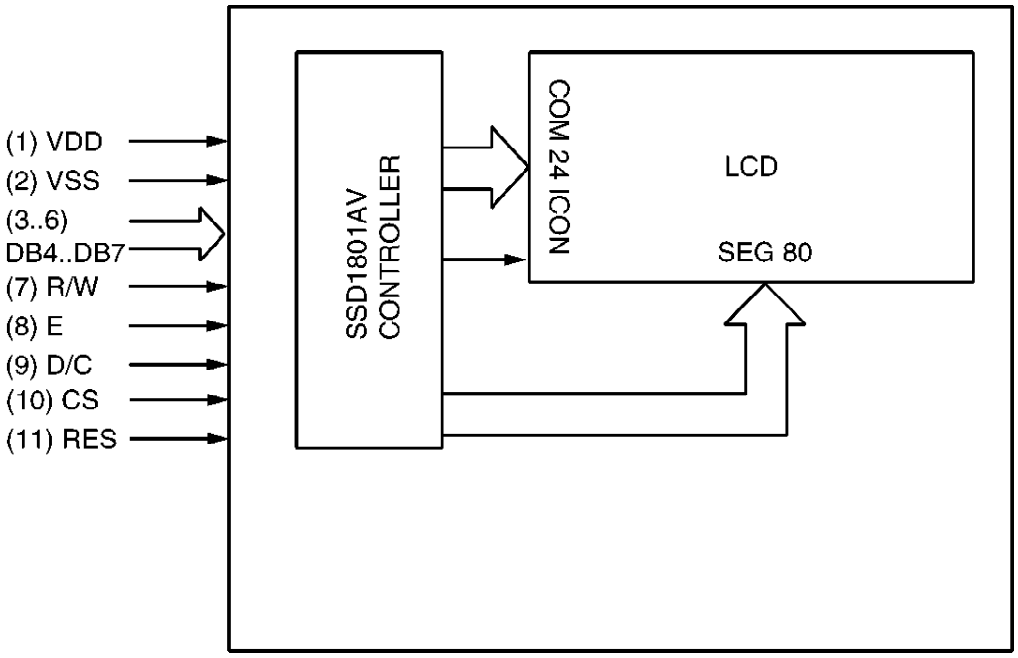


Pin NO.	Name	Description
1	RR	A resistor to ground provides a reference current for the transmit and receive attenuat
2	RTX	A resistor to ground determines the nominal gain of the transmit attenuator. The transı channel gain is inversely proportional to the RTX resistance.
3	TXI	Input to the transmit attenuator. Input resistance is nominally 5.0 kohms.
4	TXO	Output to the transmit attenuator. The TXO output signal drives the input of the transm detector, as well as the external circuit which drives the telephone line.
5	TLI	Input of the transmit level detector. An external resistor ac coupled to the TLI pin sets t detection level. Decreasing this resistor increases the sensitivity to transmit channel s
6	TLO	Output of the transmit level detector. An external resistor and capacitor set the time th comparator will hold the system in the transmit mode after speech ceases.
7	RLI	Input of the receive level detector. An external resistor ac coupled to the RLI pin sets tl detection level. Decreasing this resistor increases the sensitivity to receive channel sig
8	RLO	Output of the receive level detector. An external resistor and capacitor set the time the comparator will hold the system in the receive mode after the receive signal ceases.
9	MCI	Microphone amplifier input. Input impedance is nominally 10 kohms and the dc bias vo approximately equal to VB.
10	MCO	Microphone amplifier output. The mic amp gain is internally set at 34 dB (50 V/V).
11	CP1	A parallel resistor and capacitor connected between this pin and Vcc holds a voltage corresponding to the background noise level. The transmit detector compares the CP1 with the speech signal from CP2.
12	CP2	A capacitor at this pin peak detects the speech signals for comparison with the backgr noise level held at CP1.

Pin NO.	Name	Description
13	XDI	Input to the transmit detector system. The microphone amplifier output is ac coupled t pin through an external resistor.
14	SKG	High current ground pin for the speaker amp output stage. The SKG voltage should be mV of the ground voltage at pin 22.
15	SKO	Speaker amplifier output. The SKO pin will source and sink up to 100 mA when ac cou the speaker. The speaker amp gain is internally set at 34 dB (50 V/V).
16	V+	Input dc supply voltage. V+ can be powered from Tip and Ring if an ac decoupling indu used to prevent loading ac line signals. The required V+ voltage is 6.0 to 11 V (7.5 V no 7.0 mA.
17	AGC	A capacitor from this pin to VB stabilizes the speaker amp gain control loop, and additi controls the attack and decay time of this circuit. The gain control loop limits the speal input to prevent clipping at SKO. The internal resistance at the AGC pin is nominally 11
18	CS	Digital chip select input. When at a Logic "0" (<0.7 V) the Vcc regulator is enabled. Whe Logic "1" (>1.6 V), the chip is in the standby mode drawing 0.5 mA. An open CS pin is a "0". Input impedance is nominally 140 kohms. The input voltage should not exceed 11
19	SKI	Input to the speaker amplifier. Input impedance is nominally 20 kohms.
20	Vcc	A 5.4 V regulated output which powers all circuit expect the speaker amplifier output s can be used to power external circuitry such as a microprocessor (3.0 mA max). A filte capacitor is required. The MC 34018 can be powered by a separate regulated supply by connecting V+ and Vcc to a voltage between 4.5 V and 6.5 V while maintaining CS at a
21	VB	An output voltage equal to approximately Vcc/2 which serves as an analogue ground f speakerphone system. Up to 1.5 mA of external load current may be sourced from VB. impedance is 250 ohms. A filter capacitor is required.
22	Gnd	Ground pin for the IC (except the speaker amplifier).
23	XDC	Transmit detector output. A resistor and capacitor at this pin hold the system in the tra mode during pauses between words or phrases. When the XDC pin voltage decays to the attenuators switch from the transmit mode to the idle mode. The internal resistor a nominally 2.6 kohms.
24	VLC	Volume control input. Connecting this pin to the slider of a variable resistor provides r mode volume control. The VLC pin voltage should be less than or equal to VB.
25	ACF	Attenuator control filter. A capacitor connected to this pin reduces noise transients as attenuator control switches levels of attenuation.
26	RXO	Output of the receive attenuator. Normally this pin is ac coupled to the input of the spe amplifier.
27	RXI	Input of the receive attenuator. Input resistance is nominally 5.0 kohms.
28	RRX	A resistor to ground determines the nominal gain of the receive attenuator. The receive gain is directly proportional to the RRX resistance.

11. MODULE BLOCK DIAGRAM

11.1. LCD MODULE BLOCK



11.2. CONNECTOR PIN ASSIGNMENT

Pin no.	signal	Function	Enable
1	VDD	+3V Power Supply	—
2	VSS	0V Power Supply	—
3	DB4	Data Bus Line	H/L
4	DB5	Data Bus Line	H/L
5	DB6	Data Bus Line	H/L
6	DB7	Data Bus Line	H/L
7	R/W	Read / Write	H/L
8	E	Enable Signal	H
9	D/C	Data / Command Control	H/L
10	CS	Chip Signal	L
11	RES	Reset Signal Input	L

12. HOW TO REPLACE FLAT PACKAGE IC

12.1. Preparation

- SOLDER

Sparkle Solder 115A-1, 115B-1 or Almit Solder KR-19, KR-19RMA

- Soldering iron

Recommended power consumption will be between 30 W to 40 W.
Temperature of Copper Rod 662 ± 50°F (350 ± 10°C)
(An expert may handle between 60 ~ 80 W iron, but beginner might damage foil by overheating.)

- Flux

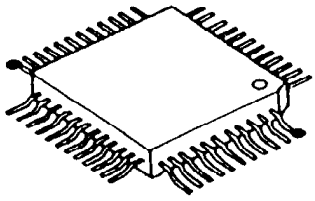
HI115 Specific gravity 0.863

(Original flux will be replaced daily.)

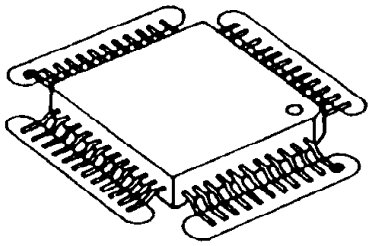
12.2. Procedure

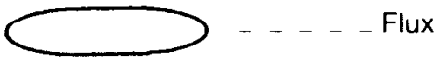
1. Temporary fix FLAT PACKAGE IC by soldering on two marked 2 pins.

***Most important matter is accurate setting of IC to the corresponding soldering foil.**

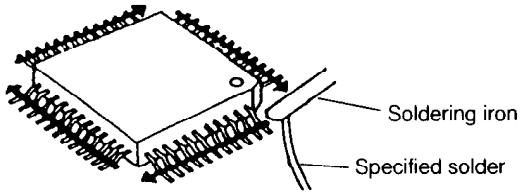


2. Apply flux for all pins of FLAT PACKAGE IC.





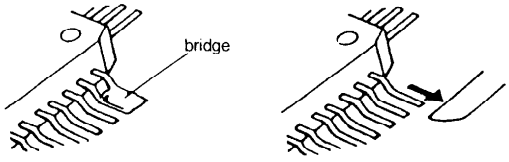
3. Solder employing specified solder to direction of arrow, as sliding the soldering iron.



12.3. Modification Procedure of Bridge

1. Re-solder slightly on bridged portion.

2. Remove remained solder along pins employing soldering iron as shown in below figure.



13. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

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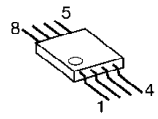
<td> 
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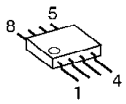
<td> 
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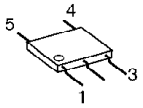
<td> 
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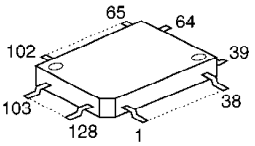
<td> 
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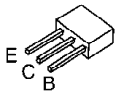
<td> 
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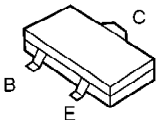
<td colspan="2"> 
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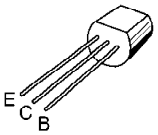
<td> 
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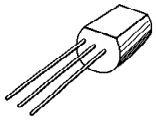
<td> 
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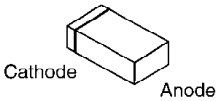
<td> 
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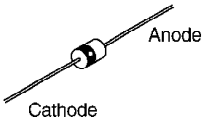
<td> 
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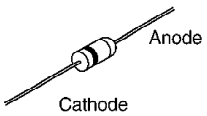
<td> 
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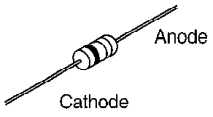
<td> 
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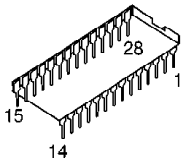
<td> 
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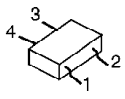
<td> 
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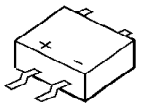
<td> 
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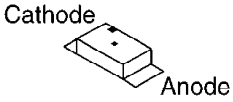
<td> 
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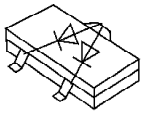
<td> 
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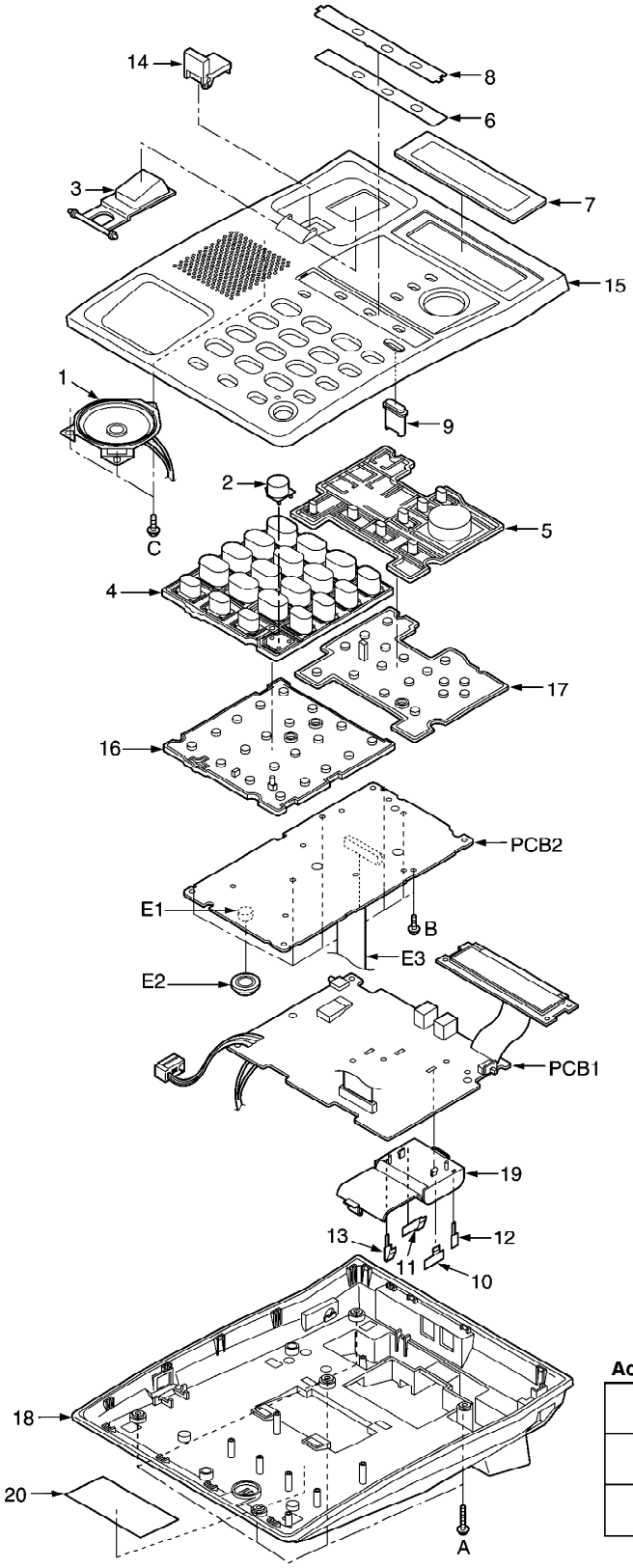
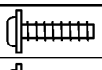
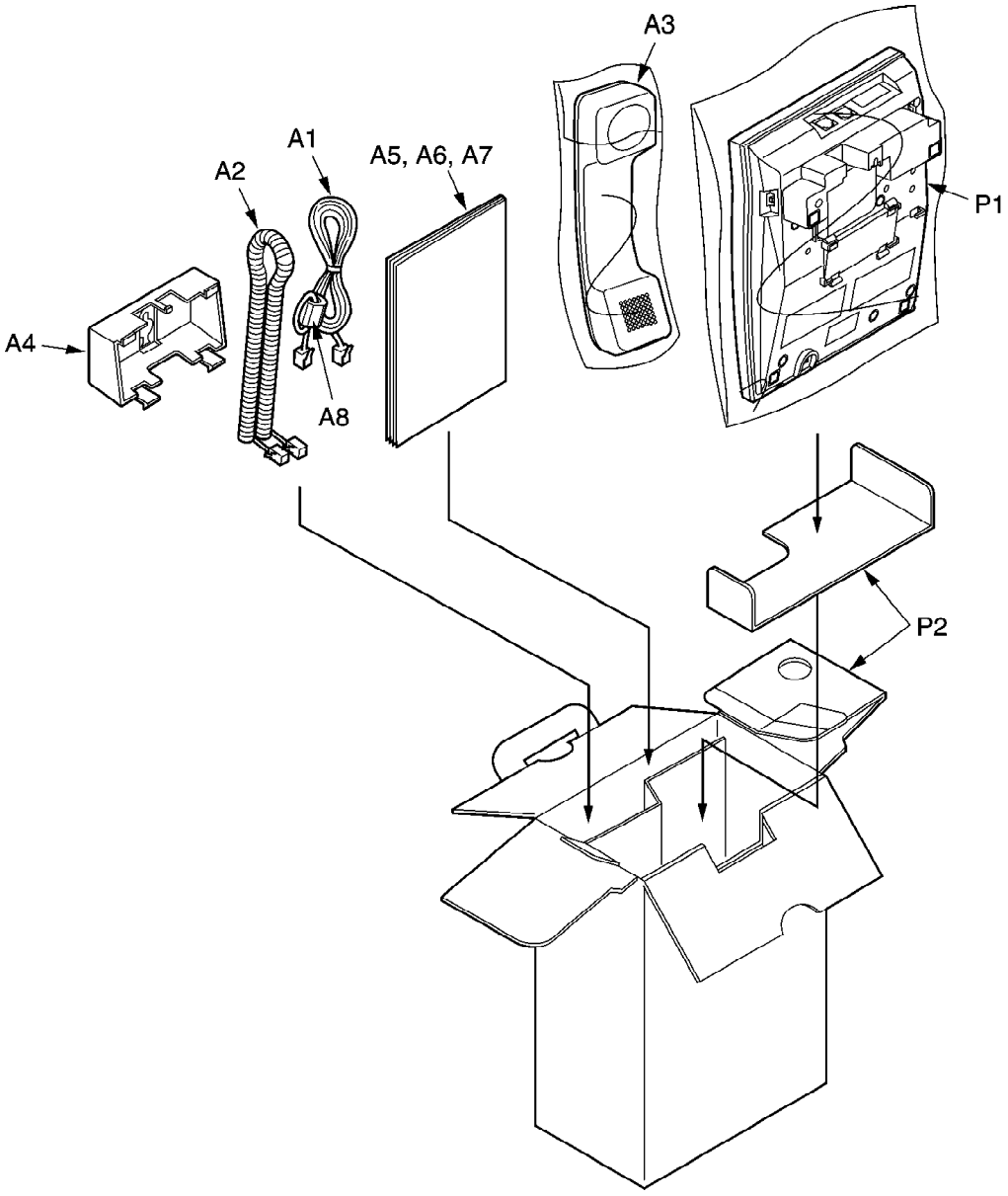
14. CABINET AND ELECTRICAL PARTS



Actual Size of Screws

A	XTW26+12P	
B	XTW26+8P	
C	XTW26+8P	

15. ACCESSORIES AND PACKING MATERIALS



16. REPLACEMENT PARTS LIST

1. RTL (Retention Time Limited)

Note:
The marking (RTL) indicates that the Retention Time is limited for this item.
After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws govering parts and product retention. At the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the mark indicates special

characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed parts.

4. RESISTORS & CAPACITORS
   Unless otherwise specified;
   All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω
   All capacitors are in MICRO FARADS (μ F)P= μ μ F
   *Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCBC : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

16.1. KX-TSC35JXW

16.1.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQAS57P03Z	SPEAKER	
2	PQBC10347Z1	PUSH BUTTON,SP PHONE	S
3	PQBH10023Y3	PUSH BUTTON,HOOK	S
4	PQBX10351Z1	PUSH BUTTON,19KEY	S
5	PQBX10357Y1	PUSH BUTTON,NAVI+7KEY	S
6	PQGD10165Z	SHEET PAPER,TEL CARD	
7	PQGP10203Z1	PANEL,LCD	S
8	PQGV10042Z	TRANSPARENT PLATE,TEL CARD COVER	
9	PQHR10915Z	COVER,LED LENS	
10	PQJC313Z	BATTERY TERMINAL	
11	PQJC314Z	BATTERY TERMINAL	
12	PQJC317Y	BATTERY TERMINAL	
13	PQJC318Y	BATTERY TERMINAL	
14	PQKE10070Z3	HANGER,H/S HOLDER	S
15	PQKM10553W1	CABINET,UPPER	S
16	PQSX10195Z	KEYBOARD SWITCH,20KEY	
17	PQSX10209Y	KEYBOARD SWITCH,NAVI+13KEY	
18	PQYF10545X1	CABINET,LOWER	S
19	PQJB3002Z8	BATTERY CASE	S
20	PQGT15350Z	NAME PLATE	

16.1.2. MAIN P. C. BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP1TSC35MX	MAIN P.C. BOARD ASS'Y (RTL)	
		(ICS)	
IC1	PQVIBA8206F	IC	S
IC201	PQVINJM2904F	IC	S
IC302	PQVIPS3435UT	IC	S
IC303	PQVIPS3325UT	IC	
IC304	C0CBABE00023	IC	
IC501	PQVINJU7014R	IC	
IC601	PQVISC77655S	IC	S
IC801	C2ABFG000002	IC	
IC802	PQWITSC35MXH	IC	
IC901	PQVIUM66T11L	IC	S
		(TRANSISTORS)	
Q1	2SD1819A	TRANSISTOR(SI)	
Q101	2SA1625	TRANSISTOR(SI)	S
Q103	PQVT2N6517CA	TRANSISTOR(SI)	S
Q104	2SK1398	TRANSISTOR(SI)	S
Q107	2SD1819A	TRANSISTOR(SI)	
Q108	2SC2120	TRANSISTOR(SI)	S
Q109	2SD1819A	TRANSISTOR(SI)	
Q110	2SD1819A	TRANSISTOR(SI)	
Q201	UN5213	TRANSISTOR(SI)	S
Q302	2SD1819A	TRANSISTOR(SI)	
Q303	2SB1218A	TRANSISTOR(SI)	
Q304	2SD1819A	TRANSISTOR(SI)	
Q401	PQVTFB1J3P	TRANSISTOR(SI)	S
Q405	2SD1819A	TRANSISTOR(SI)	
Q406	2SD1819A	TRANSISTOR(SI)	
Q421	2SD1819A	TRANSISTOR(SI)	
Q423	PQVTFB1A4M	TRANSISTOR(SI)	S
Q424	2SD1819A	TRANSISTOR(SI)	
Q425	UN5213	TRANSISTOR(SI)	S
Q426	2SD1819A	TRANSISTOR(SI)	
Q491	UN5213	TRANSISTOR(SI)	S
Q492	UN5213	TRANSISTOR(SI)	S
Q493	UN5213	TRANSISTOR(SI)	S
Q501	2SB1218A	TRANSISTOR(SI)	
Q502	2SD1819A	TRANSISTOR(SI)	
Q602	UN5213	TRANSISTOR(SI)	S
Q851	2SD1819A	TRANSISTOR(SI)	
Q852	UN5213	TRANSISTOR(SI)	S
Q922	PQVTFB1A4M	TRANSISTOR(SI)	
		(DIODES)	
D1	PQVDS1ZB60F1	DIODE(SI)	S
D2	MA4300	DIODE(SI)	
D3	1SS119	DIODE(SI)	S
D101	PQVDS1YB60F1	DIODE(SI)	S
D102	MA111	DIODE(SI)	
D103	MA111	DIODE(SI)	
D104	MA4180	DIODE(SI)	

Ref. No.	Part No.	Part Name & Description	Remarks
D105	1SS119	DIODE(SI)	S
D106	MA4062	DIODE(SI)	
D108	MA4180	DIODE(SI)	
D109	MA111	DIODE(SI)	
D202	MA111	DIODE(SI)	
D203	1SS119	DIODE(SI)	S
D301	1SS119	DIODE(SI)	S
D304	MA700A	DIODE(SI)	
D308	MA700A	DIODE(SI)	
D309	1SS119	DIODE(SI)	S
D310	MA700A	DIODE(SI)	
D401	MA111	DIODE(SI)	
D402	MA111	DIODE(SI)	
D501	MA111	DIODE(SI)	
D502	MA111	DIODE(SI)	
D503	MA111	DIODE(SI)	
D504	MA111	DIODE(SI)	
D505	MA111	DIODE(SI)	
D551	1SS119	DIODE(SI)	S
D552	1SS119	DIODE(SI)	S
D553	1SS119	DIODE(SI)	S
D554	1SS119	DIODE(SI)	S
D601	1SS119	DIODE(SI)	S
D602	1SS119	DIODE(SI)	S
D802	MA141WA	DIODE(SI)	
D803	MA141WA	DIODE(SI)	
D804	MA141WA	DIODE(SI)	
D805	MA141WA	DIODE(SI)	
D806	MA141WA	DIODE(SI)	
		(COIL)	
L1	ELEV101KA	COIL	
		(CONNECTOR)	
CN801	PQJS24X54Z	CONNECTOR	S
		(CRYSTAL OSCILLATOR)	
X801	PQVCL3276N6Z	CRYSTAL OSCILLATOR	S
X802	PQVBZTA3.58M	CRYSTAL OSCILLATOR	
		(JACKS)	
CN401	PQJJ1C001Z	JACK/SOCKET,HEAD SET	S
H/S	PQJJ1T030Z	JACK/SOCKET,HANDSET	
JJ101	PQJJ1T008X	JACK/SOCKET,MODULAR	S
JJ102	PQJJ1T008X	JACK/SOCKET,TEL JACK	S
		(LCD)	
LCD	L5DCAGC00001	LIQUID CRYSTAL DISPLAY	
		(SWITCHES)	
S1	PQSS3A17W	SLIDE SWITCH,RINGR SELECTOR	
SW101	PQSH2B105Z	PUSH SWITCH,HOOK	
		(TRANSFORMER)	
T1	PQLT2D2A	TRANSFORMER	S
		(VARISTOR)	
SA101	PQVDDSS301L	VARISTOR	S
		(PHOTO ELECTRIC TRANSDUCER)	
PC2	PQVIPC814K	PHOTO ELECTRIC TRANSDUCER	
		(RESISTORS)	
R1	ERDS1TJ682	6.8K	S

Ref. No.	Part No.	Part Name & Description	Remarks
R2	ERJ3GEYJ183	18K	
R3	ERJ3GEYJ334	330K	
R4	ERJ3GEYJ823	82K	
R6	ERJ3GEYJ103	10K	
R7	ERJ3GEYJ473	47K	
R14	ERJ3GEYJ103	10K	
R101	ERDS2TJ683	68K	
R102	ERDS2TJ104	100K	
R103	ERJ3GEYJ104	100K	
R104	ERJ3GEYJ473	47K	
R105	ERJ3GEYJ684	680K	
R106	ERJ3GEY0R00	0	
R107	ERJ3GEYJ474	470K	
R108	ERDS2TJ472	4.7K	
R116	ERJ3GEYJ473	47K	
R117	ERJ3GEYJ682	6.8K	
R118	ERJ3GEYJ103	10K	
R119	ERJ3GEYJ102	1K	
R120	ERJ3GEY0R00	0	
R121	ERJ3GEYJ153	15K	
R123	ERJ3GEYJ560	56	
R124	ERDS1TJ150	15	S
R125	ERJ3GEYJ102	1K	
R126	ERJ3GEYJ335	3.3M	
R127	ERJ3GEYJ392	3.9K	
R128	ERJ3GEYJ560	56	
R129	ERJ3GEYJ334	330K	
R130	ERJ3GEYJ122	1.2K	
R141	PQ4R10XJ825	8.2M	S
R142	PQ4R10XJ335	3.3M	S
R143	ERJ3GEYJ105	1M	
R201	ERJ3GEYJ103	10K	
R202	ERJ3GEYJ124	120K	
R203	ERJ3GEYJ103	10K	
R204	ERJ3GEYJ394	390K	
R205	ERJ3GEYJ562	5.6K	
R206	ERJ3GEYJ183	18K	
R207	ERJ3GEYJ103	10K	
R208	ERJ3GEYJ472	4.7K	
R209	ERJ3GEYJ104	100K	
R301	ERJ3GEYJ225	2.2M	
R302	ERJ3GEYJ685	6.8M	
R303	ERJ3GEYJ225	2.2M	
R304	ERJ3GEYJ475	4.7M	
R310	ERJ3GEYJ223	22K	
R311	ERJ3GEYJ104	100K	
R312	ERJ3GEYJ104	100K	
R313	ERJ3GEYJ104	100K	
R314	ERJ3GEYJ103	10K	
R320	ERJ3GEYJ103	10K	
R401	ERJ3GEYJ123	12K	
R402	ERJ3GEYJ822	8.2K	
R403	ERJ3GEYJ392	3.9K	
R404	ERJ3GEYJ332	3.3K	

Ref. No.	Part No.	Part Name & Description	Remarks
R405	ERJ3GEYJ273	27K	
R406	ERJ3GEYJ185	1.8M	
R407	ERJ3GEYJ222	2.2K	
R408	ERJ3GEYJ391	390	
R409	ERJ3GEYJ223	22K	
R410	ERJ3GEYJ474	470K	
R411	ERJ3GEYJ681	680	
R412	ERJ3GEY0R00	0	
R413	ERJ3GEYJ101	100	
R421	ERJ3GEYJ222	2.2K	
R422	ERJ3GEY0R00	0	
R423	ERJ3GEYJ223	22K	
R424	ERJ3GEYJ334	330K	
R425	ERJ3GEYJ335	3.3M	
R426	ERJ3GEYJ222	2.2K	
R427	ERJ3GEYJ221	220	
R428	ERJ3GEYJ562	5.6K	
R429	ERJ3GEY0R00	0	
R430	ERJ3GEYJ473	47K	
R431	ERJ3GEYJ104	100K	
R432	ERJ3GEYJ223	22K	
R434	ERJ3GEYJ335	3.3M	
R435	ERJ3GEYJ332	3.3K	
R436	ERJ3GEYJ681	680	
R437	ERJ3GEYJ153	15K	
R440	ERJ3GEYJ473	47K	
R441	ERJ3GEYJ104	100K	
R442	ERJ3GEYJ104	100K	
R443	ERJ3GEYJ105	1M	
R444	ERJ3GEYJ153	15K	
R482	ERJ3GEYJ155	1.5M	
R483	ERJ3GEYJ275	2.7M	
R501	PQ4R10XJ334	330K	S
R502	PQ4R10XJ334	330K	S
R503	ERJ3GEYJ474	470K	
R504	ERJ3GEYJ474	470K	
R505	ERJ3GEYJ334	330K	
R506	ERJ3GEYJ222	2.2K	
R507	ERJ3GEYJ334	330K	
R508	ERJ3GEYJ335	3.3M	
R509	ERJ3GEYJ273	27K	
R510	ERJ3GEYJ394	390K	
R511	ERJ3GEYJ105	1M	
R512	ERJ3GEYJ104	100K	
R513	ERJ3GEYJ105	1M	
R514	ERJ3GEYJ473	47K	
R515	ERJ3GEYJ103	10K	
R516	ERJ3GEYJ224	220K	
R517	ERJ3GEYJ105	1M	
R551	PQ4R10XJ104	100K	S
R552	PQ4R10XJ104	100K	S
R600	ERJ3GEYJ392	3.9K	
R601	ERJ3GEYJ153	15K	
R602	ERJ3GEYJ272	2.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R603	ERJ3GEYJ332	3.3K	
R604	ERJ3GEYJ472	4.7K	
R605	ERJ3GEYJ225	2.2M	
R606	ERJ3GEYJ303	30K	
R607	ERJ3GEYJ683	68K	
R608	ERJ3GEYJ682	6.8K	
R609	ERJ3GEYJ275	2.7M	
R610	ERJ3GEYJ104	100K	
R611	ERJ3GEYJ183	18K	
R612	ERJ3GEYJ222	2.2K	
R613	ERJ3GEYJ104	100K	
R614	ERJ3GEYJ473	47K	
R615	ERJ3GEYJ103	10K	
R617	ERJ3GEYJ472	4.7K	
R618	ERJ3GEYJ222	2.2K	
R619	ERJ3GEYJ103	10K	
R621	ERJ3GEYJ823	82K	
R622	ERJ3GEYJ393	39K	
R623	ERJ3GEYJ183	18K	
R665	ERJ3GEYJ474	470K	
R666	ERJ3GEYJ225	2.2M	
R667	ERJ3GEYJ105	1M	
R801	ERJ3GEYJ474	470K	
R802	ERJ3GEYJ563	56K	
R803	ERJ3GEYJ272	2.7K	
R804	ERJ3GEYJ394	390K	
R807	ERJ3GEYJ104	100K	
R808	ERJ3GEYJ104	100K	
R809	ERJ3GEYJ105	1M	
R810	ERJ3GEYJ104	100K	
R811	ERJ3GEYJ224	220K	
R813	ERJ3GEYJ681	680	
R824	ERJ3GEYJ104	100K	
R825	ERJ3GEYJ102	1K	
R826	ERJ3GEYJ102	1K	
R827	ERJ3GEYJ102	1K	
R828	ERJ3GEYJ102	1K	
R851	ERJ3GEYJ472	4.7K	
R853	ERJ3GEYJ105	1M	
R901	ERJ3GEYJ101	100	
R902	ERJ3GEYJ103	10K	
R903	ERJ3GEYJ105	1M	
R904	ERJ3GEYJ564	560K	
R921	ERJ3GEYJ103	10K	
R922	ERJ3GEYJ103	10K	
R923	ERJ3GEYJ823	82K	
R924	ERJ3GEY0R00	0	
R925	ERJ3GEY0R00	0	
R928	ERJ3GEYJ473	47K	
R929	ERJ3GEYJ105	1M	
L401	PQ4R18XJ000	0	S
C600	ERJ3GEY0R00	0	
C626	ERJ3GEY0R00	0	
C803	ERJ3GEY0R00	0	

Ref. No.	Part No.	Part Name & Description	Remarks
J1	PQ4R10XJ000	0	S
J101	PQ4R10XJ000	0	S
J102	PQ4R10XJ000	0	S
J103	PQ4R18XJ000	0	S
J104	PQ4R10XJ000	0	S
J106	PQ4R10XJ000	0	S
J803	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	ECQE2E105KZ	1	S
C2	ECEA1HKA4R7	4.7	
C3	ECEA1HKSR22	0.22	S
C5	ECUV1H822KBV	0.0082	
C6	ECEA1HKA010	1	
C7	ECUV1C104KBV	0.1	
C8	ECUV1H103KBV	0.01	
C101	ECKD2H681KB	680P	S
C102	ECKD2H681KB	680P	S
C103	ECUV1H103KBV	0.01	
C105	ECEA1CU221	220	
C106	ECEA1HU100	10	S
C107	ECEA1AU331	330	
C108	ECUV1C104KBV	0.1	
C109	ECUV1H103KBV	0.01	
C110	ECUV0J105KBV	1	
C111	ECUV1H103KBV	0.01	
C112	ECUV1C104KBV	0.1	
C113	ECUV1H183KBV	0.018	
C114	ECEA1EK470	47	S
C120	ECKT2H152KB	0.0015	S
C201	ECUV1C473KBV	0.047	
C202	ECEA1EU470	47	S
C203	ECUV1H222KBV	0.0022	
C204	ECUV1C473KBV	0.047	
C205	ECUV1C104KBV	0.1	
C303	ECEA0JU331	330	
C304	ECUV1H333KBV	0.033	S
C306	ECUV1H103KBV	0.01	
C308	ECA0JM102B	0.001	
C311	ECUV1C104ZFV	0.1	
C402	ECUV1C104KBV	0.1	
C403	ECUV1C104KBV	0.1	
C404	ECUV1C104KBV	0.1	
C405	ECUV1C104KBV	0.1	
C406	ECUV1H221JCV	220P	S
C408	ECUV1H183KBV	0.018	
C414	ECEA1CKA100	10	
C420	ECUV1H153KBV	0.015	
C421	ECUV1H183KBV	0.018	
C422	ECUV1H103KBV	0.01	
C423	ECUV1H822KBV	0.0082	
C424	ECUV1H103KBV	0.01	
C425	ECUV1H103KBV	0.01	
C426	ECUV1C104KBV	0.1	
C435	ECUV1C104KBV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C438	ECUV1H103KBV	0.01	
C481	ECUV1H103KBV	0.01	
C501	ECKT2H152KB	0.0015	S
C502	ECKT2H152KB	0.0015	S
C503	ECUV1H471JCV	470P	S
C504	ECUV1H471JCV	470P	S
C505	ECUV1H680JCV	68P	
C506	ECUV1H222KBV	0.0022	
C507	ECUV1C104ZFV	0.1	
C508	ECUV1C104ZFV	0.1	
C509	ECUV1C104KBV	0.1	
C551	ECUV1H103KBV	0.01	
C552	ECUV1H103KBV	0.01	
C553	ECUV1H221JCV	220P	S
C601	ECA0JM102B	0.001	
C602	ECUV1C473KBV	0.047	
C603	ECUV1H333KBV	0.033	S
C605	ECUV1H153KBV	0.015	
C606	ECUV1C683KBV	0.068	
C607	ECUV1C273KBV	0.027	
C608	ECUV1H153KBV	0.015	
C609	ECUV1C104KBV	0.1	
C610	ECEA1HKA010	1	
C611	ECEA1HKA010	1	
C612	ECEA1EU4R7	4.7	
C613	ECUV1C683KBV	0.068	
C614	ECEA1CKS470	47	S
C615	ECEA0JU220	22	
C616	ECUV1C104KBV	0.1	
C617	ECEA1EU470	47	S
C618	ECEA1AKS330	33	S
C619	ECEA1EU4R7	4.7	
C620	ECUV1H223KBV	0.022	
C621	ECEA1AU101	100	S
C622	ECUV1C104KBV	0.1	
C624	ECUV1H103KBV	0.01	
C625	ECEA1AU101	100	
C801	ECUV1H103KBV	0.01	
C802	ECUV1C104ZFV	0.1	
C804	ECUV1H472KBV	0.0047	
C805	ECUV1H561KBV	560P	
C806	ECUV1H220JCV	22P	
C807	ECUV1H220JCV	22P	
C808	ECUV1H330JCV	33P	
C809	ECUV1H330JCV	33P	
C810	ECUV1C104ZFV	0.1	
C811	ECUV1H103KBV	0.01	
C812	ECUV1C104KBV	0.1	
C813	ECUV1C104KBV	0.1	
C815	ECUV1H471JCV	470P	S
C816	ECUV1H471JCV	470P	S
C817	ECUV1H471JCV	470P	S
C818	ECUV1H471JCV	470P	S
C823	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C824	ECUV1C104ZFV	0.1	
C901	ECEA1CKA100	10	
C902	ECUV1H472KBV	0.0047	
C903	ECUV1H103KBV	0.01	
C921	ECUV1H332KBV	0.0033	
C922	ECUV1H182KBV	0.0018	
C923	ECUV1H332KBV	0.0033	

16.1.3. OPERATION P. C. BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQWP2TSC35MX	OPERATION P.C. BOARD ASS'Y (RTL)	
		(LEDS)	
LED801	PSVD1SRCT	LED	S
LED802	PSVD1SRCT	LED	S
		(JACKS)	
CN801	PQJS24X54Z	JACK/SOCKET	S
		(OTHERS)	
E1	PQJM122Z	BUILTIN,MICROPHONE	
E2	PQMG10025Z	RUBBER PARTS,MIC	
E3	PQJE10091Z	FLEXIBLE FLAT CABLE	

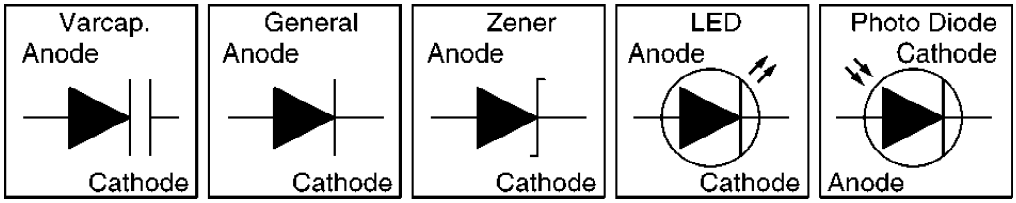
16.1.4. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10075Z	CORD,TEL LINE	
A2	PQJA212M	CORD,HANDSET	
A3	PQJXC0102Z	HANDLE/HANDSET	
A4	PQKL10035Z2	STAND,WALL MOUNTING ADAPTOR	S
A5	PQQX13387Z	INSTRUCTION BOOK	
A6	PQQW12668Z	QUICK REFERENCE GUIDE (for Arabic)	
A7	PQQW12722Z	LEAFLET	
A8	KRCBC130714B	FERITE CORE	
P1	PQPH89Y	PROTECTION COVER	
P2	PQPK13758Z	GIFT BOX	

17. FOR SCHEMATIC DIAGRAM [pages 43, 44, 47]

1. SW1: Hook switch.
2. SW2: Ringer selector.
3. DC voltage measurements are taken with electronic voltmeter from negative voltage line.
4. (Add 40 mA to telephone line from the loop simulator.)
5. Off-hook condition
6. No Mack: Handset Mode

7. This schematic diagram may be modified at any time with the development of new technology.
8. The shades area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
9. When servicing, it is essential that only manufacture's specified parts be used for the critical components in the shaded areas of the schematic.



18. SCHEMATIC DIAGRAM (MAIN)

19. PRINTED CIRCUIT BOARD (MAIN)

19.1. Component View

19.2. Flow Solder Side View

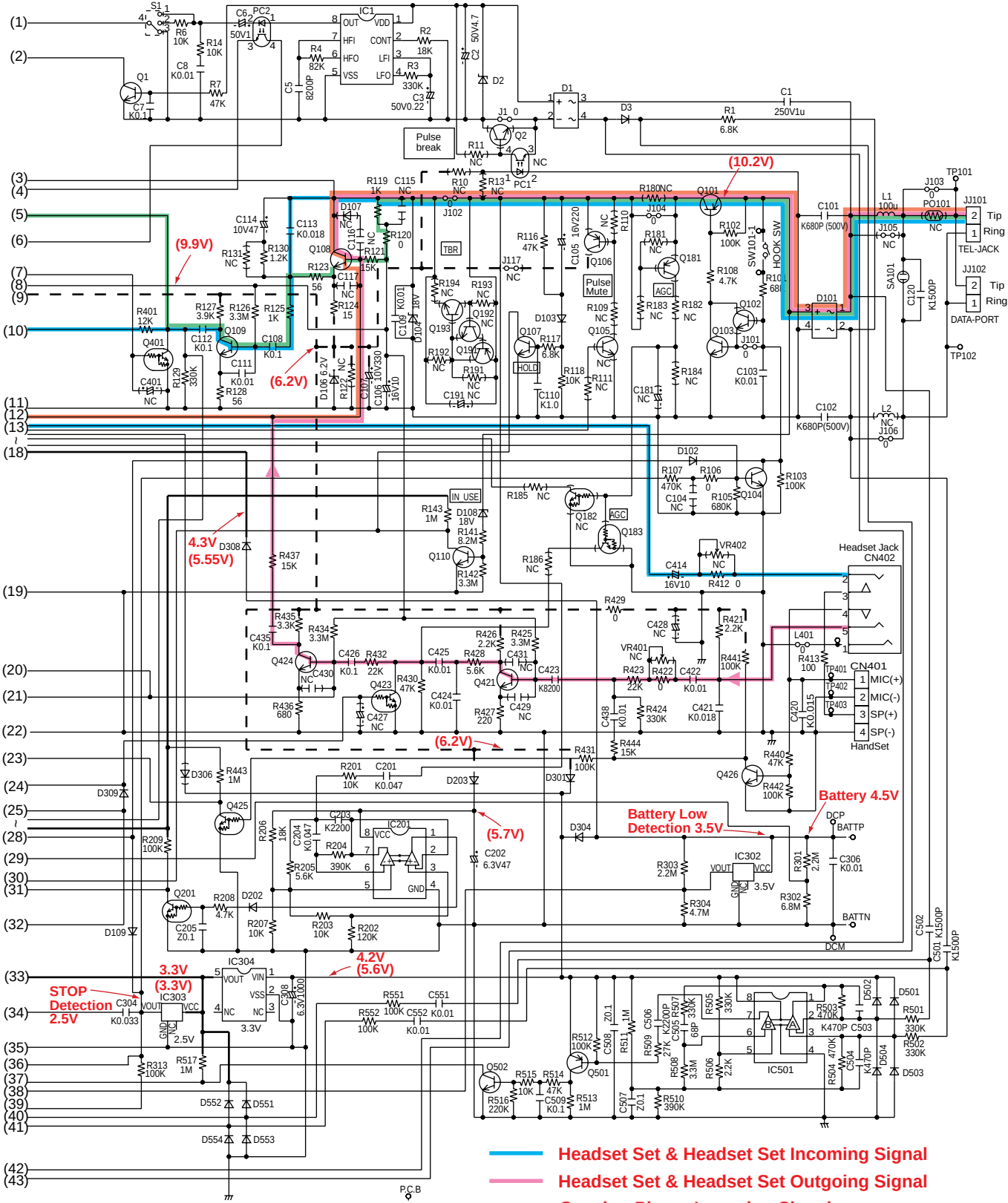
20. SCHEMATIC DIAGRAM (OPERATION)

21. PRINTED CIRCUIT BOARD (OPERATION)

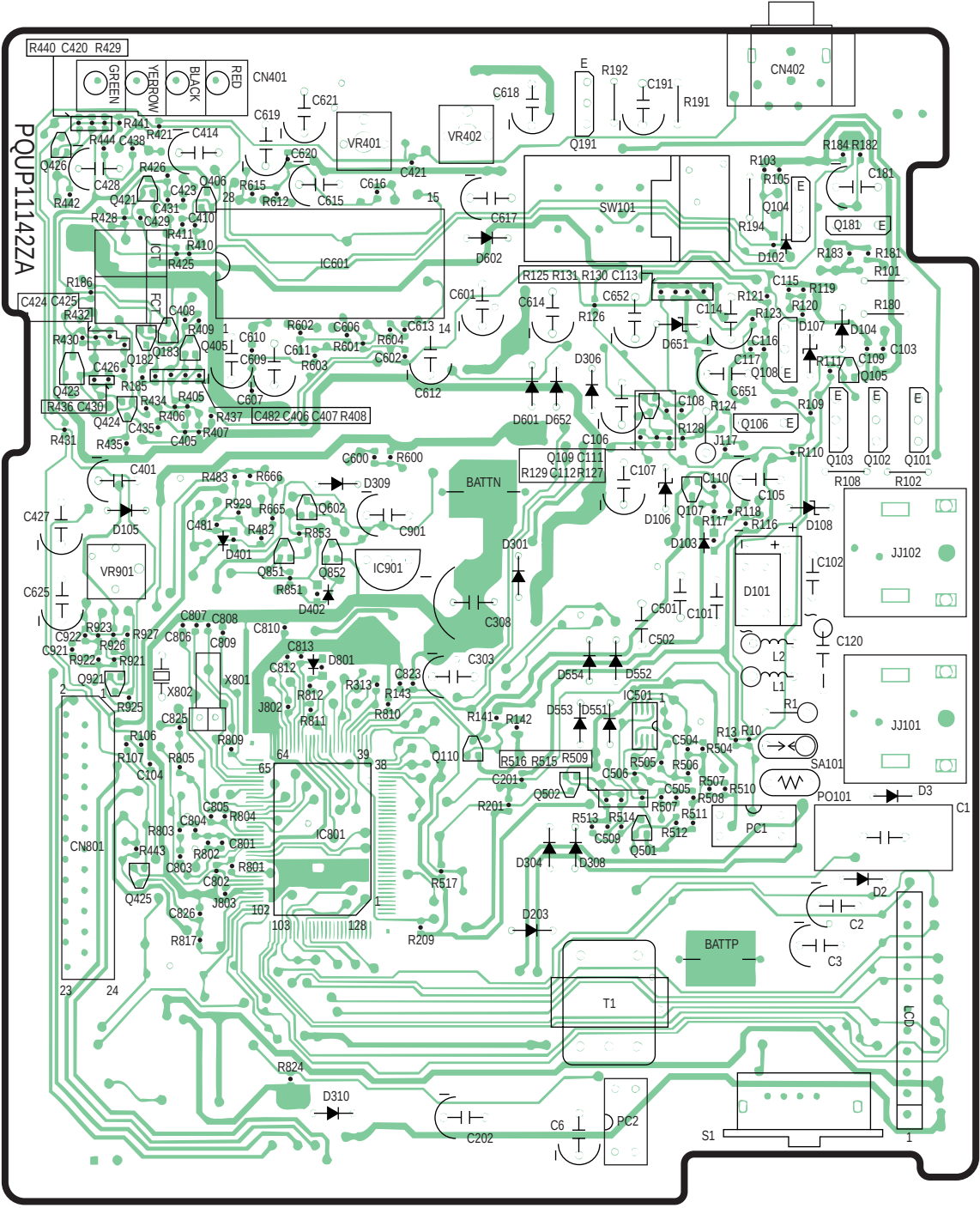
21.1. Component View

21.2. Flow Solder Side View

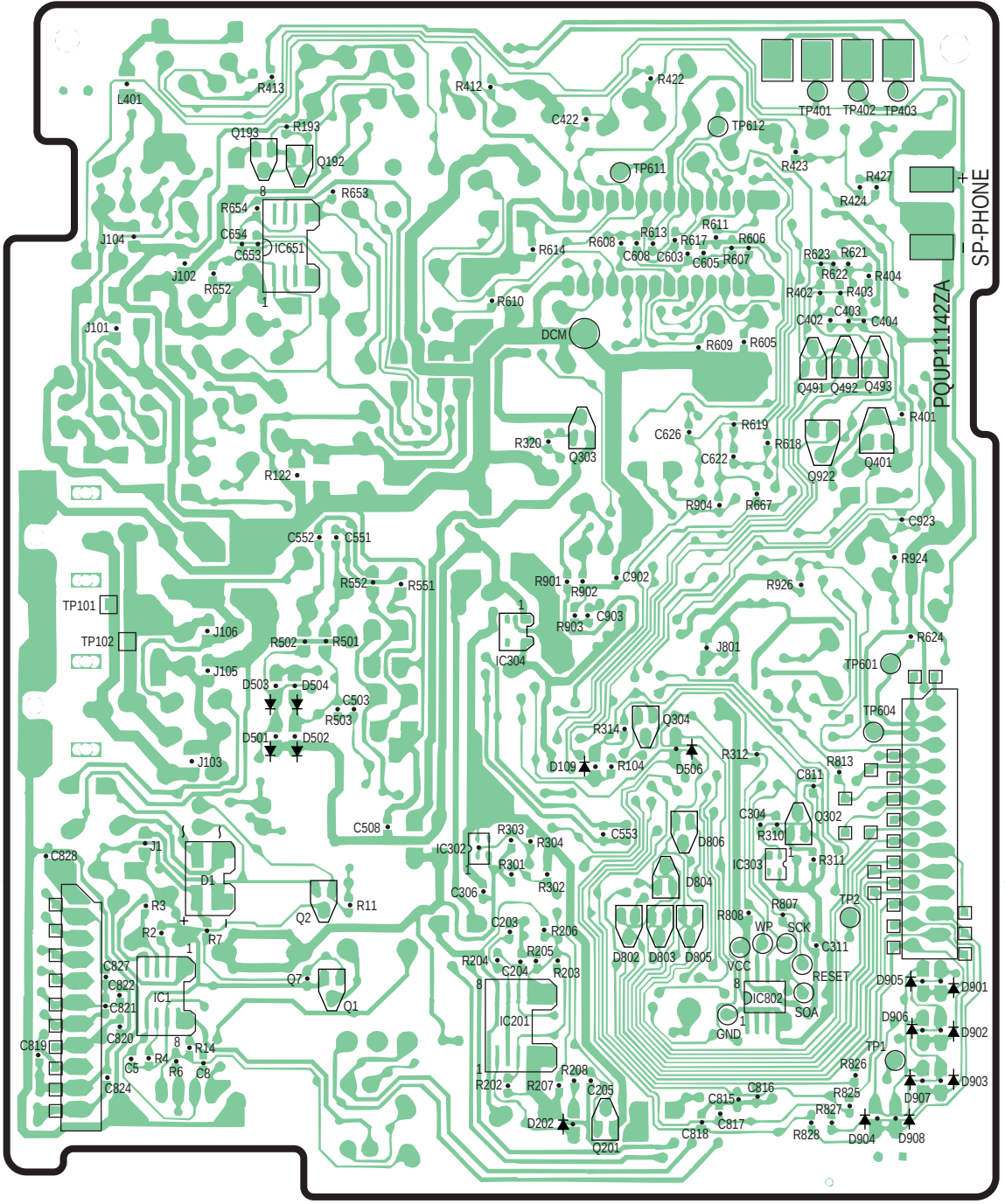
H / KXTSC35JXW /



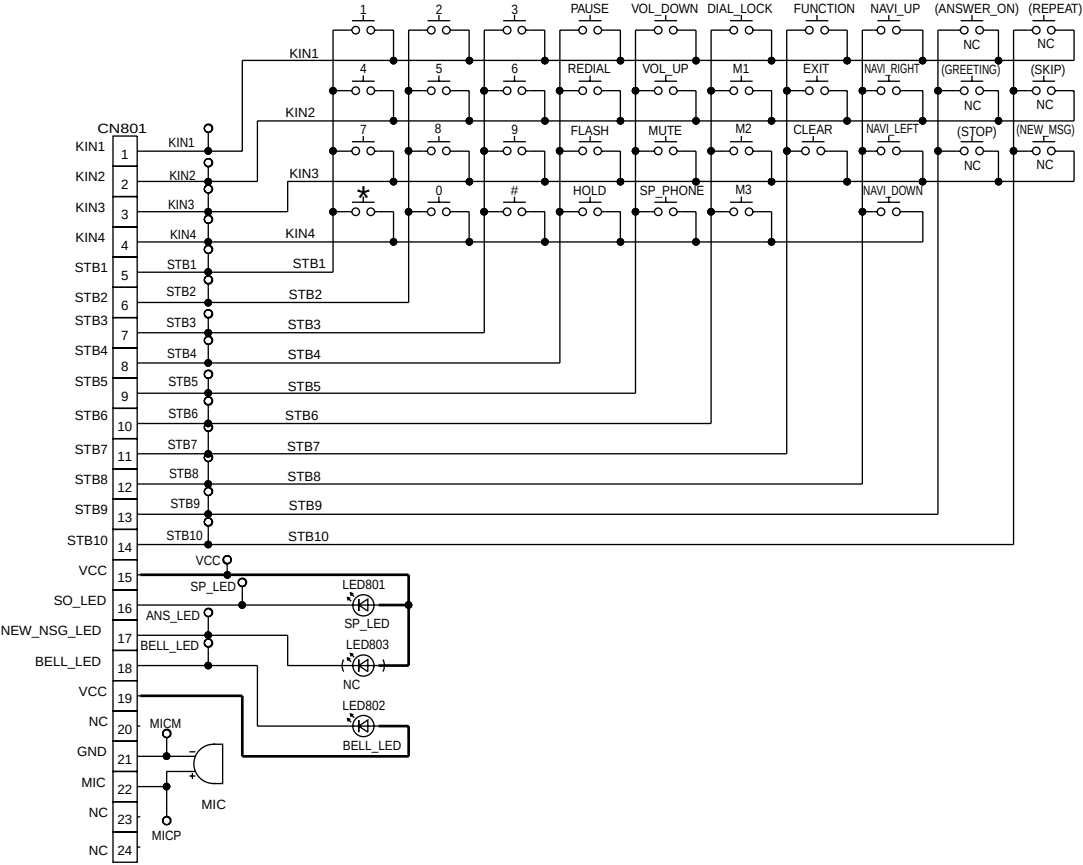
KX-TSC35JXW : SCHEMATIC DIAGRAM (MAIN)



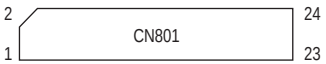
KX-TSC35JXW : MAIN BOARD : COMPONENT VIEW



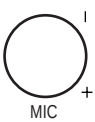
KX-TSC35JXW : MAIN BOARD : BOTTOM VIEW



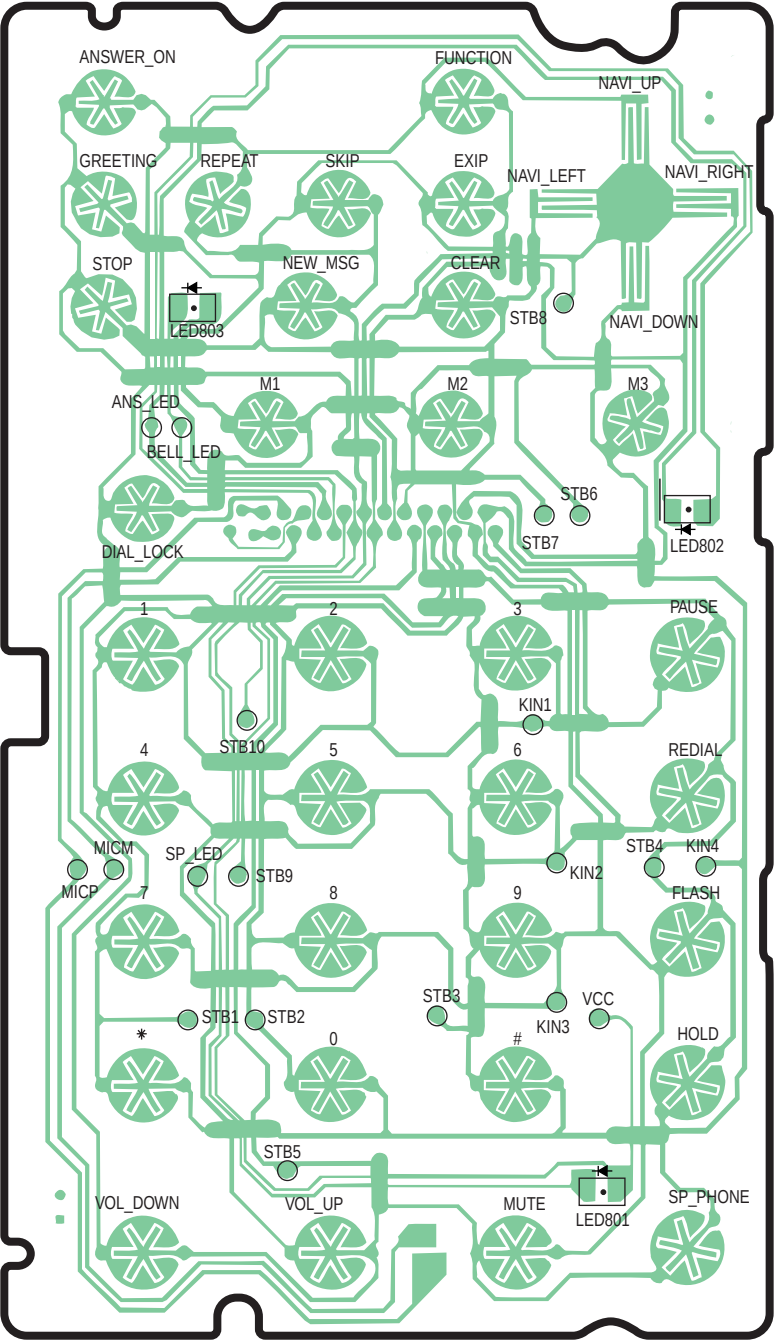
KX-TSC35JXW : SCHEMATIC DIAGRAM (OPERATION)



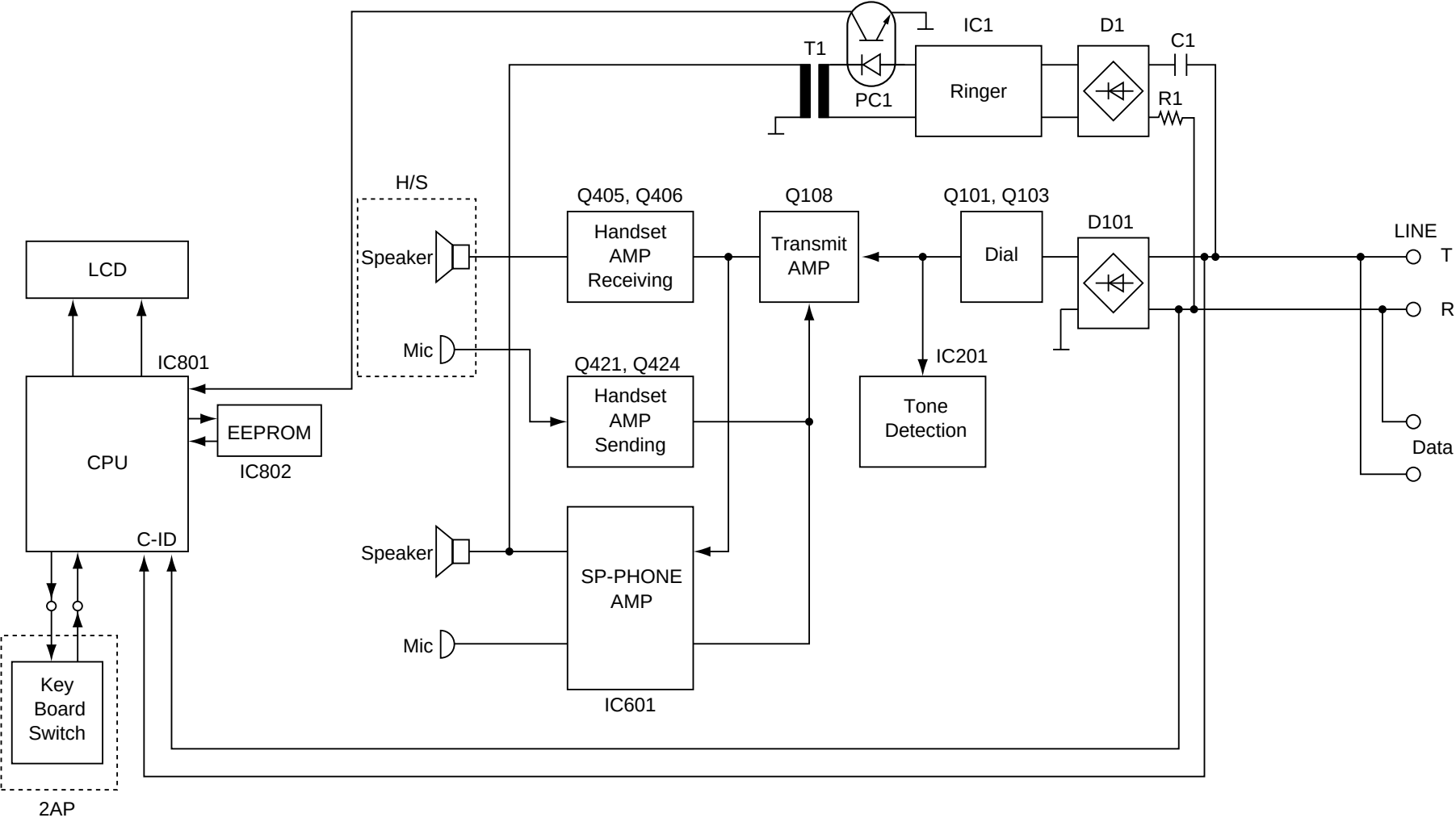
PQUP11143ZA



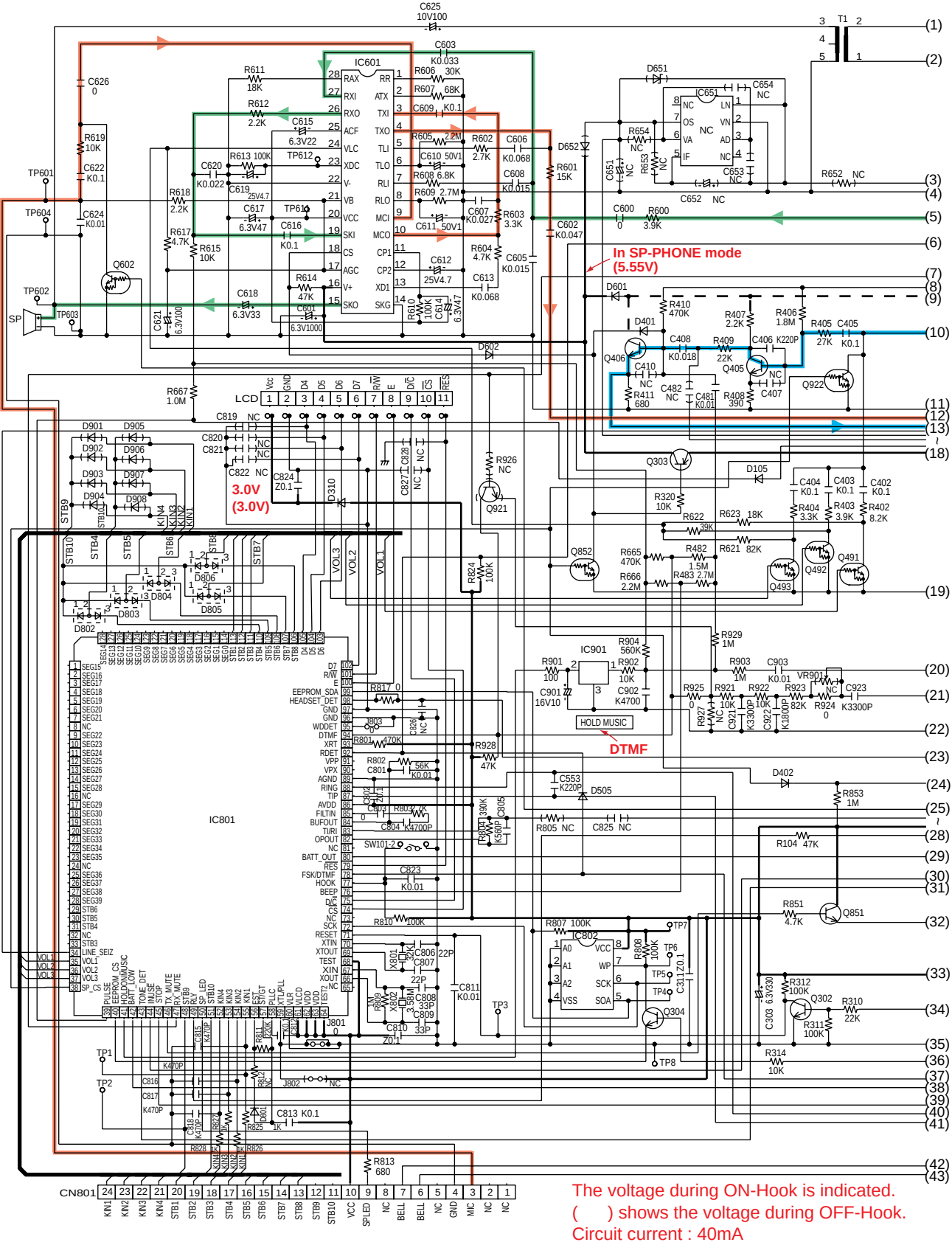
KX-TSC35JXW : OPERATION BOARD : COMPONENT VIEW

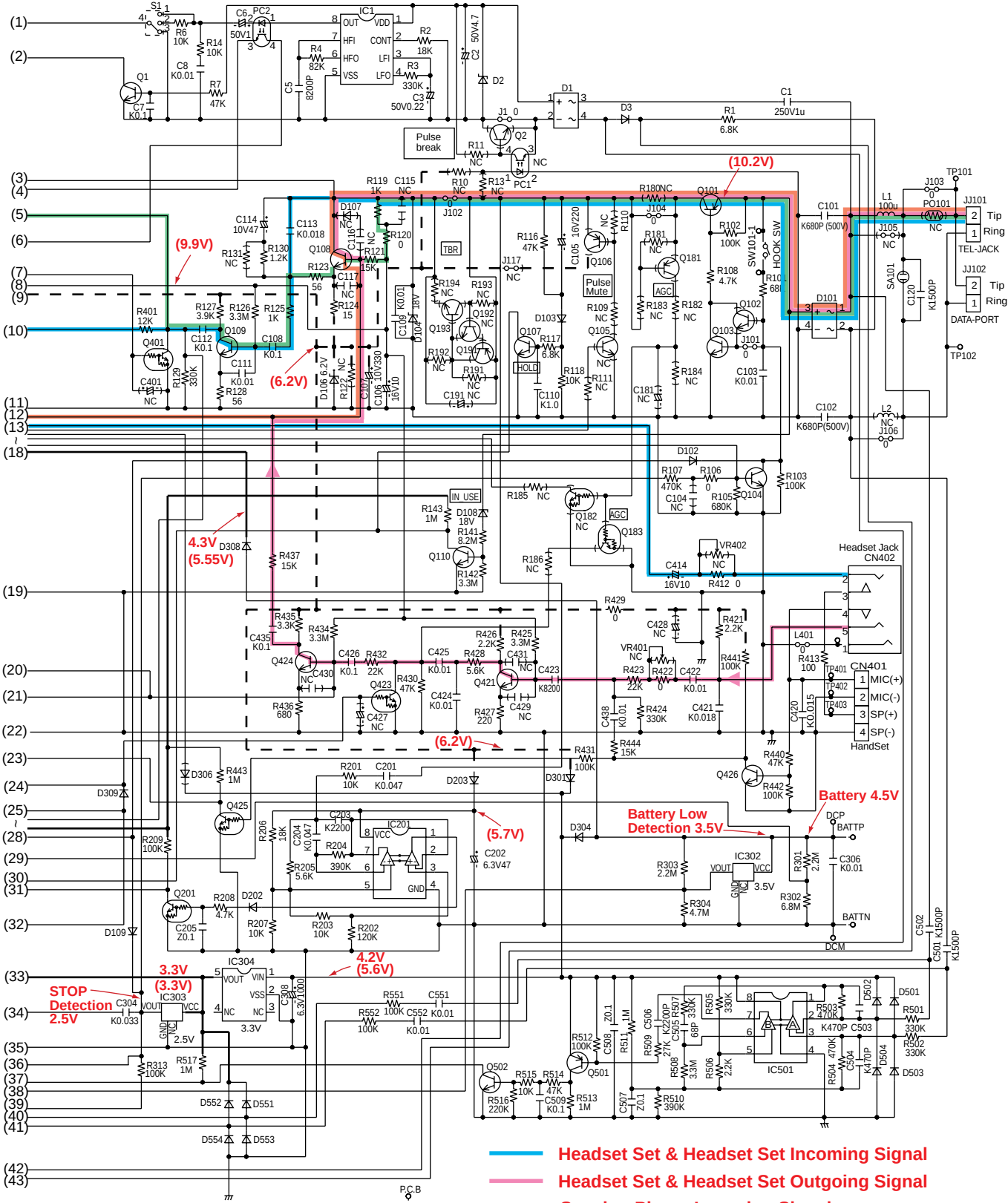


KX-TSC35JXW : OPERATION BOARD : BOTTOM VIEW



KX-TSC35JXW : BLOCK DIAGRAM


In SP-PHONE mode
(5.55V)
3.0V
(3.0V)
HOLD MUSIC
DTMF
IC601
IC801
IC901
IC802
LCD
CN801
The voltage during ON-Hook is indicated.
( ) shows the voltage during OFF-Hook.
Circuit current : 40mA



KX-TSC35JXW : SCHEMATIC DIAGRAM (MAIN)